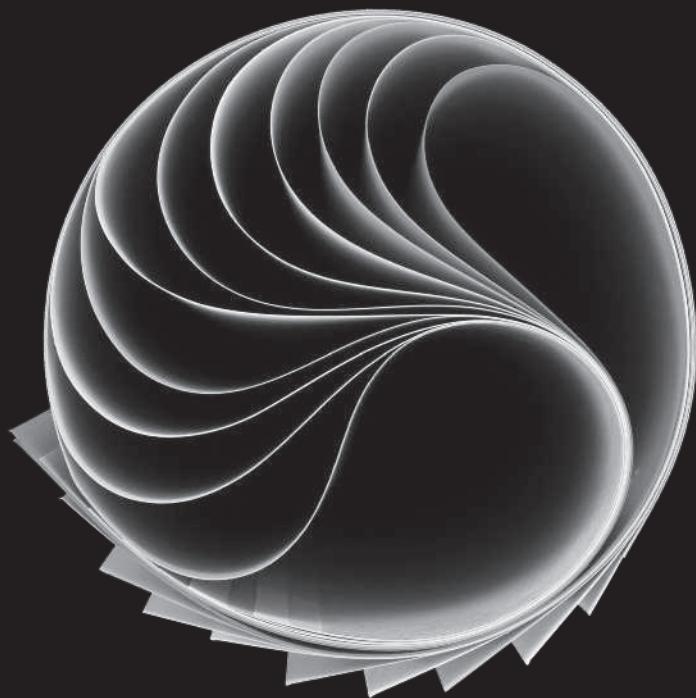


PROCUREMENT AND SUPPLY CHAIN MANAGEMENT



ARJAN J. VAN WEELE AND FRANK ROZEMEIJER



PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

EIGHTH EDITION

ARJAN J. VAN WEELE AND FRANK ROZEMEIJER



Australia • Brazil • Canada • Mexico • Singapore • United Kingdom • United States

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For Ineke and Marcia

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Preface to the eighth edition

It is both an honour and pleasure to welcome you on the very first page of this unique procurement book.

The increasing complexity of supply markets and the growing dependency on powerful key suppliers across supply chains puts higher demands on the procurement function than ever before. This is also true for the professionals who work in this important business domain, who need to reflect regularly and check whether they work in line with the contemporary theories, concepts and tools to meet today's and tomorrow's business needs. This is exactly what this new book intends to be. A fresh, profound and complete update on procurement as it should be today, heading for the challenges of tomorrow. It provides a balanced and structured overview of all the pillars of a performant procurement function, blended with inspiring business cases and practical insights. It is a must read for every inquisitive student, ambitious young procurement professional, seasoned procurement manager/leader or visionary board member.

Throughout the book it becomes clear that suppliers are not just supplying their products and services. The supply base of any organization is, as I have experienced in my career, also an extremely powerful source of expertise. Expertise that can instantly and constantly contribute to process improvement, product development and competitiveness. Suppliers often know more about what can be improved than their customers. It is their field of expertise, their passion and they never stop learning from their collaboration with multiple customers from different industries. They master best-practices, know the pitfalls, have roadmaps for innovation and are able to share their views on effective collaboration models. Procurement is more and more about unlocking that supplier expertise to continuously improve products and processes, set up streamlined end-to-end supply chains, source innovation and last but not least, implement digital processes to facilitate smart interaction and collaboration. Pure logic and so much to gain!

This requires both effective and efficient procurement processes and tools at the operational, tactical and strategic level, based upon a clear digital procurement vision and roadmap. Organization models are also transforming in an organic way. Procurement and supply chain management are heading towards full integration. Procurement teams show a growing mix of own payroll talent blended with flexible 'plug and play' expertise. When all the right procurement processes and enablers are in place, the procurement department will be able to drive financial performance, innovation, sustainability and supply risk mitigation. This book is full of inspiration on how to best develop the procurement function to the highest professional standards.

Authors Arjan van Weele and Frank Rozemeijer have been for many years leading procurement ambassadors and sources of inspiration on an international scale. What makes them unique is their firm belief in the power of blending academic research and insights with business cases and industry reality. For this, they continuously interact with a broad international network of CPOs, procurement executives, industry leaders and board members. Arjan and Frank are extremely curious to find out about the next development for our procurement profession and more specifically how to bring that into practice. I have never seen them refuse an opportunity to share their academic knowledge, including the latest best-practices, and they act as a kind of inspiration engine for procurement professionals and guide them towards their next growth step.

Arjan impacted strongly on my own professional procurement path starting from reading his books, visiting his seminars and collaborating for the very first time when delivering a procurement excellence program at Nyenrode University for an international FMCG company. Frank is far more than a colleague to me. He is a personal friend, a 'compagnon de route'. We share the same excessive level of passion for procurement and interact in different settings to mix theory and practice to inspire and support multiple companies in almost any industry. Arjan van Weele and Frank Rozemeijer: there is no stronger duo I can think of to deliver this excellent book. I wish you a lot of inspiration!

*Manu MatthysSENS; Founder and Managing Partner SOLVINT Group;
Professor Strategic Procurement at Antwerp Management School; Entrepreneur*

New to this edition

This eighth edition is a major update and previous edition users may find the following notes useful when making the transition to the new edition.

To reflect contemporary thinking and practice, the term ‘procurement’ rather than ‘purchasing’ is used throughout this book, as this term has a broader coverage and depth, and aligns the text with the leading professional body in the industry.

Chapters have been re-organized into four sections: I Introduction and context, II Processes and strategies, III Interfaces and IV Enablers. New and updated content is provided on innovation sourcing, procurement with purpose: driving sustainability in supply chain relationships, supplier relationship management, and procurement systems. As a result some chapters are new whilst others are renamed to reflect the arrangement of content; the box below provides a comparison between the 8th and 7th editions. Key changes are as follows:

- Large parts of the text on ‘Procurement and business strategy’ (Chapter 7 in the 7th edition) have been integrated in to the new Chapter 3 ‘Procurement as a business function’.
- A chapter is now dedicated to the important topic of Supplier Relationship Management (Chapter 10).
- A new chapter is now included on ‘Procurement systems’ (Chapter 14).
- Chapter 15 on how to drive sustainability in supply chain relationships has been significantly expanded and updated.

Throughout the book, introductory cases have been replaced and updated, as have many memos and illustrations. A new feature for this edition is the ‘Theory snapshot’ added to introduce the reader to important theories and academic perspectives. To facilitate teaching, the eight case studies for classroom discussion have been retained.

Contents overview comparison: Procurement and Supply Chain Management, 8th versus 7th edition

8th edition	7th edition	New title
Chapter 1	Chapter 1	Introducing procurement
Chapter 2	Chapter 2	The procurement process
Chapter 3	Chapters 3, 7	Procurement as a business function
Chapter 4	Chapter 8	Outsourcing
Chapter 5	Chapters 7, 9	Category sourcing: developing effective sourcing strategies
Chapter 6	Chapter 4	Sourcing business services
Chapter 7	Chapter 5	Contracting and contract management
Chapter 8	Chapter 6	Public procurement
Chapter 9	Chapter 11	Procurement and supply chain management
Chapter 10	Chapters 10, 14	Supplier relationship management
Chapter 11	Chapters 10, 14	Innovation sourcing
Chapter 12	Chapter 15	Procurement with purpose: driving sustainability in supply chain relationships
Chapter 13	Chapter 12	Organizing procurement
Chapter 14		Procurement systems
Chapter 15	Chapter 13	Managing procurement performance

Introduction

Procurement and supply management on the move

Over the decades, procurement and supply management as a discipline has changed considerably in many companies. This is reflected in the increased attention this discipline is receiving from business managers and practitioners. Considering the amount of money generally involved in the preparation and execution of procurement and supply decisions, this is not a surprise. An effectively and efficiently operating procurement and supply function can make an important contribution to company results. However, there is more. As a result of the implementation of improvement programmes in engineering, manufacturing and logistics management, many companies feel the need for improved relationships with suppliers. These relationships necessarily should result in more innovative products and customer solutions, a faster time-to-market, just-in-time delivery and zero defects. More than that, these relationships should result in a better value proposition to the company's customers. Traditionally, the procurement department acts as the intermediary which negotiates the agreements and contracts with suppliers and supervises their compliance with the agreements. This traditional role is, however, changing rapidly as can be seen from the procurement practices in some major, leading edge companies. Moving away from their traditional operational roles, procurement and supply managers are assuming more strategic roles in their organizations, focused on active management of supplier relationships in order to get better performance from them.

These are a few important reasons why management is becoming increasingly interested in procurement and supply management as a business discipline.

Why this book?

Compared to other management disciplines, relatively little academic research has been undertaken in the area of procurement and supply management. Although procurement consultancy has prospered and grown immensely, most consulting firms do not openly share their models, ideas and experience with the outside world. This explains why there is quite a gap in the development of a solid body of knowledge in procurement compared to other disciplines in business administration. Fortunately, some new textbooks covering modern procurement practices have become available in recent years. Most of these, however, have been written from a truly academic background and insufficiently cover the developments which are at present taking place in the procurement and supply practices of large, global companies. Practical descriptions of procurement situations, which can serve as a learning vehicle and study material for students, are few. This contrasts with disciplines such as marketing, financing, organizational behaviour and other management disciplines, where many student and practitioner textbooks exist.

It is encouraging that an increasing number of business schools and academic institutions have decided to include procurement and supply management in their curriculum. This initiative has no chance of success, however, if there is no effective and up-to-date supportive learning and teaching material. This book aims to meet this need.

Intended audience

This book is intended for those who are interested in procurement and supply management in its broadest sense. Its contents aim to provide an in-depth discussion of procurement and supply issues, both from a strategic and a

managerial perspective. Reading this book will neither make you a buyer nor a procurement manager. In this, the text differs from the more practitioner-oriented literature.

In particular, this book is intended for:

- bachelor and master students in business administration and industrial engineering, who want to specialize in business strategy, technology management, operations management or supply chain management
- professional managers in trade and industry, active in procurement or supply chain management, who are interested in opportunities for improving the effectiveness and efficiency of the procurement and supply function in their companies
- executive students, who participate in management development programmes in the area of strategic management, technology management, operations management and supply chain management
- account managers and industrial sales representatives who in their professional capacity regularly meet with professional buyers, and who are interested in the way these buyers perform their tasks
- those who supervise procurement staff directly or indirectly, and who come from a non-procurement background and are interested in the latest developments in the area of procurement.

Framework

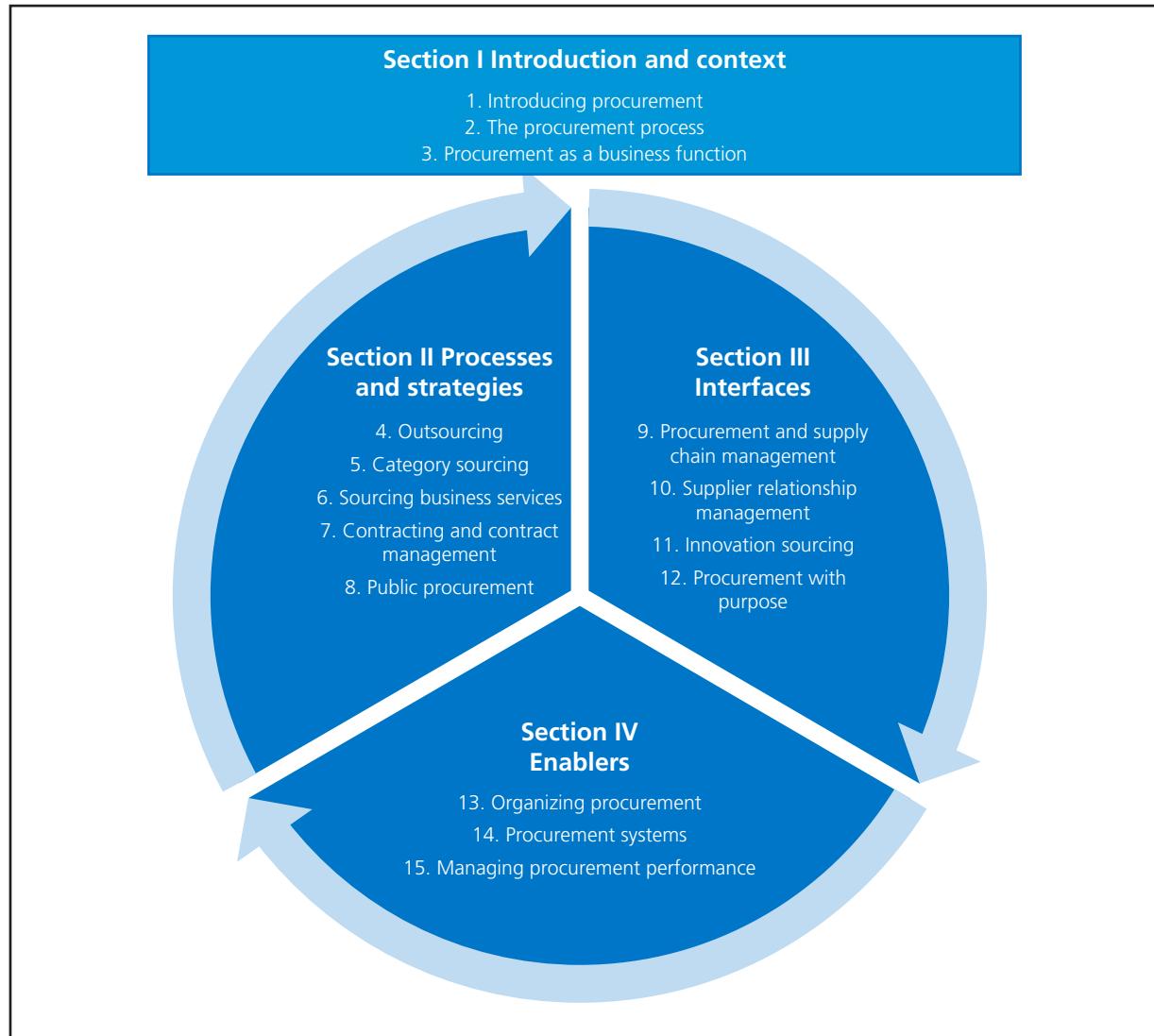
The book has been developed using the following principles:

- Strategic management perspective. In this book, the subject of procurement and supply management is presented as an essential link in the business system. This business system is only as strong as its weakest link. The way procurement and supply management is executed or should be executed is presented from a strategic management perspective. This implies, for example, that attention is given to subjects such as how company objectives may influence procurement and supply strategies and policies, how procurement and supply strategies should support overall business strategy, how to develop these strategies, how to execute them, how to manage the procurement process and how to monitor and manage procurement performance.
- Practical orientation. Business administration and industrial engineering are concerned with analyzing and solving practical business problems. For this reason, the various subjects are discussed from a practical point of view. This book does not aim to transform the reader into a professional buyer. The intention is to introduce the reader to the discipline and familiarize them with the key concepts. Literature and theory are provided where we thought it needed to give a broader perspective.
- Scientific basis. In discussing the subject matter, repeated reference is made to existing theories in management literature. In this way individual readers can broaden their orientation if they so desire. When necessary, views on procurement issues are illustrated with research results from national and international specialist literature. Recent literature references have been used, as well as references from a more mature age where we felt these to be still relevant to the subject. However, in order to increase the readability of the text, references are kept to a minimum.
- Identical structure of each chapter. Every chapter is alike in structure and encompasses:
 - the learning objectives
 - an introductory case to illustrate the practical relevance of the subject
 - an introduction which provides a survey of the most important subjects which will be discussed in the chapter
 - a body text explaining the core concepts and techniques
 - practical illustrations and memos to emphasize and illustrate certain subjects in a chapter
 - a summary at the end of each chapter
 - assignments for classroom discussion, if desired.

Structure

The book is divided into four parts, each containing several chapters. The overall structure is presented in the figure below.

Figure 0.1 Structure of the book



Section I: Introduction and context is aimed at becoming acquainted with the discipline. The key concepts and terms are presented in these chapters.

Section II: Processes and strategies is about how to decide between make or buy, i.e. when to outsource business activities and when not. If a decision to outsource is made, the right business partner needs to be selected and contracted. This includes category sourcing which can be aimed at products, services or solutions buying. Category sourcing results in contracts with suppliers and service providers which obviously need to be managed.

Section III: Procurement interfaces is about how to manage the relationships between procurement, supply chain management, other business disciplines and suppliers. These relationships are important in order to drive both innovation and sustainability in supply chain relationships.

Finally, **Section IV: Enablers** discusses what it takes to get organized for professional procurement, what it takes to recruit the right staff for procurement jobs, what systems to use to manage the complicated procurement processes and how to get the best possible performance from a procurement organization.

Let's have a quick look at each chapter.

Chapter 1 focuses on the role and significance of the procurement function for industrial and service companies. This is done by describing procurement's role in the company's value chain. Further, definitions of important terms and concepts are provided. We explain why we prefer to use the term procurement rather than purchasing. In the remainder of the book a clear distinction is made between the activities of the procurement department and the procurement function. This chapter also discusses the differences between the different kinds of products and services that can be bought. In doing so, this chapter provides a framework for the rest of the book.

Chapter 2 addresses the buying behaviour of organizations. The major differences between buying behaviour of consumers and organizations are discussed. Various models of organizational buying decision-making, developed in the (industrial) marketing literature, are presented. A core model in this chapter is the procurement process model, which is described in detail. Through this chapter the reader will gain insight into the complexity which characterizes many procurement decisions in organizations.

The core of Chapter 3 is how procurement may support the company's business objectives and strategies. In order to be effective, management needs to give attention to each element of the procurement management process. This starts by defining procurement and supply goals and objectives and strategies needed to realize these. Procurement goals and objectives need to be aligned with the company's goals and objectives. Procurement strategies need to be worked out into time-phased action plans. Next, the implementation of these action plans needs to be monitored and followed up. The procurement development model describes how procurement and supply as a business function may develop over time. In general, six different stages of development may be identified. In this way the procurement development model may serve as a vehicle to provide guidance for a company on how to professionalize procurement in the future.

Outsourcing and risk management are the prime topics of Chapter 4. Attention is given to the growing trend towards outsourcing. Many companies decide nowadays to focus on what they can do best and those activities that provide them with a competitive edge in their end-user markets. Non-core activities are increasingly outsourced to specialist suppliers. This is, however, not without problems, as companies run the risk of becoming too dependent on their suppliers. This chapter deals with the issue of how outsourcing may be structured in a company, the underlying change processes that are required and how companies can reduce their risk profile vis-à-vis their suppliers.

Overall procurement and supply strategies need to be worked out in specific category sourcing strategies and plans. This is the central topic of Chapter 5, which discusses category sourcing. Here the question is addressed of how to get the best results from suppliers for different purchased categories and commodities. Key to category sourcing is to select the right number of suppliers, and to decide about the right type of relationship and the right type of contract that should be put in place. Building on strategic marketing concepts, a procurement portfolio approach is presented on which four basic differentiated supplier strategies are based. It will be explained that in order to develop effective category sourcing strategies, the company also needs to understand its position in the supplier's customer portfolio.

Chapter 6 deals with how to buy and contract for business services. It will become clear what specific difficulties may arise when buying services. A classification on how to differentiate between different types of business services is provided. Next, the implications for how to structure the procurement process and/or sourcing process for business services are discussed. Specific attention is given to how to specify for services, how to select service providers and how to contract for their services.

Chapter 7 discusses contracting and contract management. Contracting for investment goods, infrastructural and civil works is an art itself. It represents a new task-buying situation where many stakeholders are involved. The varying degrees of complexity are reflected in different contract types such as construction only, design and construct, engineer-procurement-construct and design-build-finance-maintain contracts. The key characteristics of each of these contract types are discussed as well as when to apply these contracts.

Chapter 8 describes the specific characteristics of public procurement, i.e. buying for governmental institutions. We do so, mostly from a European perspective. The text has been adapted to the most recent changes in European

procurement law. From this chapter it will become clear that large differences exist between buying for government and buying for private enterprise. Governmental bodies are not free to choose their procurement procedures. Therefore, this chapter gives elaborate attention to the most important EU directives on public procurement, its procurement procedures and how to work with these.

Chapter 9 describes the role of procurement within supply chain management. After providing some key definitions, the basics of supply chain management are presented. This is achieved by providing a logistics reference model, which differentiates between several manufacturing situations (ranging from assembly to order to job shop operations). This model explains why procurement operations within different companies and industries may be vastly different. Next, it covers a detailed discussion on materials requirements planning, just-in-time management and the required information technology.

Chapter 10 presents a framework for supplier relationship management (SRM) explaining the different activities involved in developing and managing supplier relationships. The chapter stresses the human aspect in relationship building and that it takes time and effort to develop trustful supplier relationships. In doing so, procurement professionals should aim first at getting the basics right, i.e. getting procurement processes and systems organized in their company. Part of this is about how to set up a proper supplier quality assurance (SQA) policy and practice to achieve zero defects delivery from suppliers. SQA will enable buyers to provide timely and actual feedback to suppliers on how they perform. Next, procurement professionals may discuss with suppliers what will be needed to consistently improve their performance (i.e. supplier development). This is important as the best performing suppliers are invited to engage in the company's innovation and new product development programmes. In this way, this chapter creates a useful stepping stone to Chapter 11, which deals with innovation sourcing.

In Chapter 11 we present both closed versus open innovation, and the differences between the two. As companies want to speed up innovation, they need to rely more on outside knowledge and expertise. However, most suppliers are not willing to share their knowledge freely and at no cost. This chapter therefore discusses what is needed to involve suppliers early, timely and effectively in innovation and new product development. The development portfolio is presented as an instrument to help organizations make decisions on how to engage suppliers in their NPD projects.

Chapter 12 contains an updated text on the important subject of how procurement and supply professionals can contribute to sustainability or 'people, planet, profit'. This topic is very real today in many large companies and public organizations. Buyers in Western companies have a great responsibility of buying for a better world. New material on circular sourcing is presented. Besides corporate social responsibility (CSR), this chapter also deals with procurement ethics and business integrity. Together, these three concepts create the necessary purpose for every modern procurement organization.

The subject of how to organize for procurement is covered in Chapter 13. In practice, a large variety of organizational structures is observed and the most important of these are discussed. There is no one best way to organize for procurement. Specific attention is given to the issue of how to create procurement leverage in a multi-plant environment. Here, different structures are discussed through which companies may capture procurement synergies. Next, the issue of how to organize for efficient procurement at the business-unit level is presented. Finally, different job profiles and competencies in procurement are discussed.

Chapter 14 is a new chapter and deals with procurement systems. Procurement is about information processing, communication and data management. In this chapter, we present and discuss the ongoing digitalization of the procurement function. Contemporary IT solutions in procurement aimed at supporting spend analytics, e-sourcing, purchase-to-pay, and contract management and supplier management are introduced. Next, we discuss the value of emerging digital technologies for procurement (e.g. artificial intelligence) and identify how these create procurement's future landscape. Chapter 15 deals with procurement performance measurement and governance. The central issue here is how to measure and assess the performance of the procurement department. Several important methods and (benchmarking) techniques are presented.

What instructor's material is available?

Teachers and instructors who have selected this book as the major textbook for their course work, may use the teaching materials that are available and further details are provided on the following page 'Teaching & Learning Support Resources'. Teaching materials consist of a teacher's manual, answers for the end of chapter discussion questions, PowerPoint presentations and case studies. This should enable them to teach their courses in both an attractive and efficient manner.

List of abbreviations

ATO:	Assembly to order
BOM:	Bill of materials
CODP:	Customer order decoupling point
CPFR:	Collaborative planning, forecasting and replenishment
CSR:	Corporate social responsibility
EOQ:	Economic order quantity
ERP:	Enterprise resource planning
ESI:	Early supplier involvement
ETO:	Engineer to order. All manufacturing activities from design to assembly and even procurement of the required materials are related to a specific customer order
IPO:	International procurement office. Large companies operate IPOs in different parts of the world
JIT:	Just-in-time
LCC:	Low-cost country sourcing
MSS:	Making and sending to stock
MRPI:	Materials requirements planning
MRP II:	Materials resources planning
MPS:	Master production scheduling
MRO:	Maintenance, repair and operating supplies
MTS:	Make (and distribute) to stock
MTO:	Make to order
NPR:	Non-product-related
OEM:	Original equipment manufacturer
PR:	Product-related
RFI:	Request for information
RFP:	Request for proposal
RFQ:	Request for quotation
ROI:	Return on investment
RONA:	Return on net assets
SLA:	Service level agreement
SQA:	Supplier quality assurance
SRP:	Socially responsible procurement
SRM:	Supplier relationship management
TCO:	Total cost of ownership
VMI:	Vendor-managed inventory

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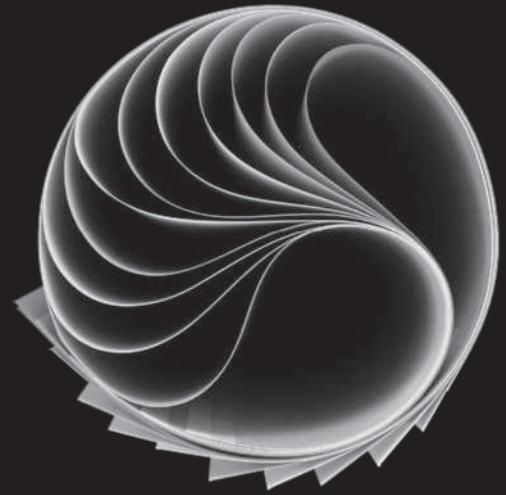
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Introduction and context



- 1 Introducing procurement**
- 2 The procurement process**
- 3 Procurement as a business function**

SECTION I

1

Introducing procurement

Learning objectives

After studying this chapter you should understand the following:

- The role and importance of procurement in the value chain.
- The difference between concepts such as ordering, buying, purchasing, procurement, sourcing, supply management, supply chain management and value chain management, and how these are interrelated.
- New developments in procurement and supply chain management practices of organizations.

Procurement The management of the company's external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company's primary and support activities is secured under the most favourable conditions.

Supply chain management The management of all activities, information, knowledge and financial resources associated with the flow and transformation of goods and services from the raw materials suppliers, component suppliers and other suppliers in such a way that the expectations of the end-users of the buying company are being met or surpassed.

Introduction

As business is becoming more and more competitive, **procurement** is increasingly recognized by top managers as a key driver for business success. Chief Procurement Officers (CPOs) and their teams can contribute significantly not only to the company's bottom line but also to its top line (Förstl, Franke & Zimmermann 2016; Hartmann, Kerkfeld & Henke 2012). Since most companies today spend more than half of their sales turnover on purchased parts and services, efficient and constructive relationships with suppliers are key to the company's short-term financial results and long-term competitive position (Chen, Paulraj & Lado, 2004; Ellram et al., 2002; Gonzalez-Benito, 2007; Narasimhan and Das, 2001; Paulraj, Chen & Flynn, 2006).

Many companies cannot escape from exploiting the huge potential that procurement and **supply chain management** represent to them today. The case study on Damen Shipyards illustrates the complexities that go with these activities. Procurement and supply chain management have different roles within this company. First, it is important to secure the supply for all projects and shipyards. Component deliveries should be made by suppliers and subcontractors on time and their quality should be flawless. Next, prices of purchased materials should be within the project budget, in order not to jeopardize project and company profitability. Where purchases of components can be leveraged across different projects and clusters, this is done. However, project-specific purchases are tailored to the project. Deliveries are made based upon detailed project planning in order to avoid the buildup of unnecessary inventory and to keep working capital minimal. This all calls for careful supplier selection and differentiated sourcing strategies and for highly professional procurement and supply chain organization.

Case study

Procurement and supply chain management at Damen Shipyards

The supply chain department at Damen Shipyards at Gorinchem, the Netherlands, is responsible for purchasing all ship components, ordering, logistics, warehousing, inventory management, management of the international purchasing offices in China and Vietnam, technical document control, parts management and materials planning. In total about 250 specialists are employed in this department. The sales and construction of different types of vessels are allocated to different business clusters. Every cluster specializes in a specific type of vessel and employs different building methods. Luxury yachts are built according to customer specification and are usually one-offs, which means that every purchase is unique for that specific project. However, tugboats, barges and other heavy-duty vessels may be produced in small series as the bodies and physical characteristics may be common among different clients. Hence, purchasing concentrates on buying parts for the preplanned production series.

The procurement function is organized around different clusters each with a dedicated procurement manager and ten specialist buyers who ensure that parts arrive on time, prices are negotiated within the project budgets and that parts comply with all specifications. Damen Shipyards employs category management across these clusters for parts that may be common to all clusters (such as ship engines, propellers, instrumentation, safety equipment), as it makes no sense to source these parts for each project individually. About 20 lead buyers are responsible for managing these cross-cluster categories, whereas three supply chain managers orchestrate the respective materials flows. This is characteristic of Damen's matrix organization: every procurement manager is not only responsible for managing all purchases for a specific cluster but at the same time leads all purchasing activities for one or two corporate categories. Careful orchestration of the purchasing spend of about €1.5 billion, which represents about 68 per cent of sales value, is necessary in order to secure the materials flow of the different shipyards while at the same time contributing to company profitability. The largest category is ship engines, which are obtained from Caterpillar, among others. Parts and components are delivered by over 600 suppliers. Building a ship requires the engagement of about 100 to 200 suppliers who deliver over 3000 components. These are just a few numbers that illustrate the sourcing and supply chain complexity at this type of company.

Damen Shipyards started as a family-owned business in 1927. When Kommer Damen, the current chairman of the supervisory board, took over from his father he steered the company on a course of international expansion. In order to achieve growth and stave off fierce competition, he introduced a new business model. Damen Shipyards would specifically focus on sales, customer contacts and design, whereas the actual construction and assembly of ships would be outsourced to specialist suppliers and subcontractors who actually built the vessels using Damen's shipyard infrastructures. Through product and component standardization, bodies for smaller vessels were sourced from low-cost countries in small series and shipped to the specific shipyards where they would be finished. Here, the customer could choose from a number of standard options that were built into the ships according to their wishes. Due to standardization Damen was able to offer very competitive prices to customers. This business model is one reason for the impressive sales growth.

Meanwhile, the company operates over 32 shipyards globally: 15 of these focus on maintenance and repair, whereas 17 shipyards are focused on building new ships and minor maintenance work. Damen employs about 9000 people, the majority of whom are employed in Vietnam. Damen today is the undisputed market leader of heavy-duty vessels and tugboats.

In this chapter, we discuss the role and importance of the procurement function. We will take Porter's classic value chain as a point of departure to show that we need to differentiate between direct procurement and indirect procurement. Some time is spent in defining important terms and concepts, and we elaborate on the role which procurement professionals may play in cost reduction, and product and process innovation. The chapter concludes by describing some important trends and developments which are perceived in the procurement strategies of companies that are leading edge in procurement and supply chain management. Therefore, this chapter sets the stage for the remaining chapters in Section I.

Value chain

management All stakeholders belonging to the same value chain are challenged to improve the (buying) company's value proposition to its final end-customers, i.e. consumers.

Value chain Composed of value activities and a margin which is achieved by these activities. Value activities can be divided into primary activities and support activities. The margin represents the value that customers want to pay extra for the company's efforts compared with the costs that were required for these.

Primary activities

Primary activities are those activities that are required to deliver the company's value proposition to its customers. They consist of inbound logistics, operations, outbound logistics, marketing and sales, and customer service activities.

Support activities

These are activities that are required to support the company's primary activities. These include procurement, technology development, human resources management and facilities management (i.e. those activities aimed at maintaining the firm's infrastructure).

Raw materials

Materials which have undergone no transformation or a minimal transformation, and they serve as the basis materials for a production process.

The role of procurement in the value chain

In many business strategies, the concept of **value chain management** plays a central role. Therefore, this subject is elaborated in this section. When describing the role and position of the procurement function in industrial companies, the **value chain** of Porter (1985, p. 37) is often taken as a term of reference.

The value chain is composed of value activities and a margin which is achieved by these activities. Value activities can be divided into physically and technically different groups of activities. Porter differentiates between **primary activities** and **support activities**. Primary activities are those which are directed at the physical transformation and handling of the final products that the company delivers to its customers. Distribution to the customer and providing services are part of these primary activities. Support activities enable and support the primary activities. They can be directed at supporting one of the primary activities as well as supporting the whole primary process.

Porter differentiates between five generic categories of primary activities (1985, pp. 39–40):

- Inbound logistics. These activities are related to receiving, storing and disseminating inputs to the production process, such as inbound transportation, incoming inspection, materials handling, warehousing, inventory control and reverse logistics.
- Operations. These activities are associated with transforming inputs into the final product, such as machining, assembly, packaging, equipment maintenance, testing, printing and facility operations.
- Outbound logistics. These are activities associated with collecting, storing and physically distributing the final product to customers, such as finished goods warehousing, materials handling, outbound transportation, order processing and scheduling.
- Marketing and sales. These activities relate to advertising, promotion, sales, distribution channel selection, the management of channel relations and pricing.
- Services. These activities are associated with providing services to customers to enhance or maintain the value of the product, such as installation, repair and maintenance, training, parts supply and product adjustment.

Support activities are grouped into four categories:

- Procurement. Relates to the function of purchasing inputs used in the firm's value chain. These may include **raw materials**, supplies and other consumable items as well as assets such as machinery, laboratory equipment, office equipment and buildings. These examples illustrate that purchased inputs may be related to primary activities as well as support activities.
- Technology development. ‘Technology’ has a very broad meaning in this context, since in Porter's view every activity embodies technology, be it know-how, procedures or technology embodied in processes, systems or product designs. Most value activities use a technology that combines a number of different sub-technologies involving different scientific disciplines.
- Human resources management. These are all the activities directed at recruiting, hiring, training, developing and compensation of all types of personnel on the company's payroll, active in both primary and support activities.
- Firm infrastructure. The whole company is the customer of these activities. Infrastructure supports the entire set of company processes. Examples include

management, planning, finance, accounting, legal, government affairs, quality management and **facilities management**. In larger companies, which often consist of different divisions and business units, one sees these activities divided among headquarters and the business units.

All activities need to be performed in such a way that the total value generated by the company, as perceived by its customers, is more than the sum of its costs. In Porter's terms, the total value of the company is determined by the whole of its sales value. The value chain, then, relates to all activities, both inside and outside the company, that create value for the company's final customers. The margin reflects the rewards for the risks incurred by the company. Porter regards procurement as a support activity that should provide support to the following business activities:

- Primary activities. The procurement function should be able to meet the material requirements related to operations management and inbound and outbound logistics. Operations may have a different structure among manufacturing companies. Usually manufacturing processes can be characterized according to the following categories:
 - Make (and distribute) to stock (MTS). Standard products are manufactured and stocked, and customers are serviced from an end product inventory. Production is on dedicated machinery, often in large batches. Materials requirements planning (and therefore also planning of purchased products) is based on sales forecasts. Examples are raw materials and most semi-manufactured products such as steel plate, tubes, food ingredients and most building materials.
 - Make to order (MTO). Products are manufactured from raw materials or the purchased components inventory after a customer order has been received and accepted and are, hence, made to order. This is common in situations with very large or customer-specific product ranges (e.g. packaging solutions for cosmetic products) or bulk products that are very expensive to stock (e.g. computers and laptops).
 - Engineer to order (ETO). All manufacturing activities from design to assembly and even procurement of the required materials are related to a specific customer order. Production is usually on multipurpose machinery, requiring highly skilled operators. Examples are luxury yachts, special purpose vessels, customer-specific production equipment and machines.

These contrasting manufacturing situations explain why procurement activities may be radically different between companies and industries. In some cases, procurement is focused on supporting diverging materials flows, where raw materials are processed to manufacture a wide range of products (for example, bakery products). In other cases, procurement needs to support a converging materials flow, where a large variety of components is to be assembled into a limited range of final products (for example, car industry, aircraft industry). Procurement operations for a car manufacturer producing cars in large batches (e.g. Tesla, Toyota, BMW), controlled by a materials requirements planning (MRP) system, may differ significantly from those produced in a job-shop environment (e.g. Koenigsegg, Pagani). The latter are more like a shipyard, where every vessel may be new to the organization and where materials are obtained from a vast, frequently changing supplier base. Buying for primary activities will be referred to throughout this book as 'product related buying' (PR), 'buying of production items' or **direct procurement**. Usually this area gets most of the attention from management.

Facilities management

Relates to the management (planning, execution and control), and the realization of housing and accommodation, the services related to these (e.g. security, cleaning, maintenance, catering), and other means in order to enable the organization to realize its mission.

Direct procurement

Procurement of all materials and products that are used for manufacturing a company's end products.

- Support activities. Procurement activities may also be related to supplying products and services for the other support functions. Some examples are the buying of:
 - laboratory equipment for research and development
 - computer hardware and software for the central IT department
 - lease-cars for the sales force
 - strategy consultants for senior management
 - office equipment for administrative staff
 - machinery and equipment for the production department
 - maintenance, repair and operations (MRO) supplies for the maintenance department.

Investment goods or capital equipment

Products which are not consumed immediately, but whose acquisition value is depreciated during their economic life-cycle.

Indirect procurement

Procurement of all materials, components and services that are used to support the company's infrastructure and back-office activities.

Again, we see that the procurement function aimed at providing supplies and services for the support activities is very different in character. Some of the purchases to be made are routine purchases and may be repetitive and low in value. Other purchases may have a 'project character' and may be unique and high valued (**investment goods or capital equipment**, computer systems, buildings).

In general, this type of purchase will be referred to as 'non-production buying (NPR)', '**indirect procurement**' or 'general expenses'. They may be classified into: MRO supplies, investment goods¹ and services. The high variety and fragmented nature of this type of purchase makes it difficult to support these by one uniform procurement procedure. As a result, indirect purchases are often done by the internal user departments, who are usually lacking professionalism in procurement. This is one reason why international companies, which have set up special professional procurement improvement programmes in the indirect area (such as IBM, Shell and Philips), have reported high savings. Table 1.1 summarizes the most important differences between buying for primary and for support activities.

Table 1.1 Main differences between buying for primary activities and buying for support activities

Aspects	Buying for primary activities	Buying for support activities
Product assortment	Limited to large	Very large
Number of suppliers	Limited, transparent	Very large, not transparent
Procurement turnover per supplier	Very large, considerable	Limited
Number of purchase orders	Considerable	Very large
Average order size	High	Small
Control	Depends on type of production planning	Limited, forecast-related or project-related buying
Decision-making unit	Engineering, manufacturing specialists dominant	Fragmented, varies with product or service

Definition of concepts

The procurement function traditionally encompasses the process of buying. It involves determining the procurement needs, selecting the supplier, arriving at a proper price, specifying terms and conditions, issuing the contract or order, and following up to ensure proper delivery and payment. In the old days it was argued that the procurement function should obtain the proper equipment, material, supplies and services of the right quality, in the right quantity, at the right place and time, at the right price and from

¹Also referred to as CAPEX (capital expenditure).

the right source (Aljian 1984, p. 3). In this description, the procurement function was regarded predominantly as an operational activity, i.e. limited to ordering.

In practice, as well as in the literature, many terms and concepts nowadays are used in the area of procurement. However, little agreement exists about the definition of these terms (Ellram et al. 2020). Terms such as purchasing, procurement, sourcing and supply management seem to be used as synonyms, notwithstanding their differences.

Throughout this book the definition of *procurement* is:

The management of the company's external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company's primary and support activities is secured at the most favourable conditions covering the materials, information and money flows up to the point of consumption.

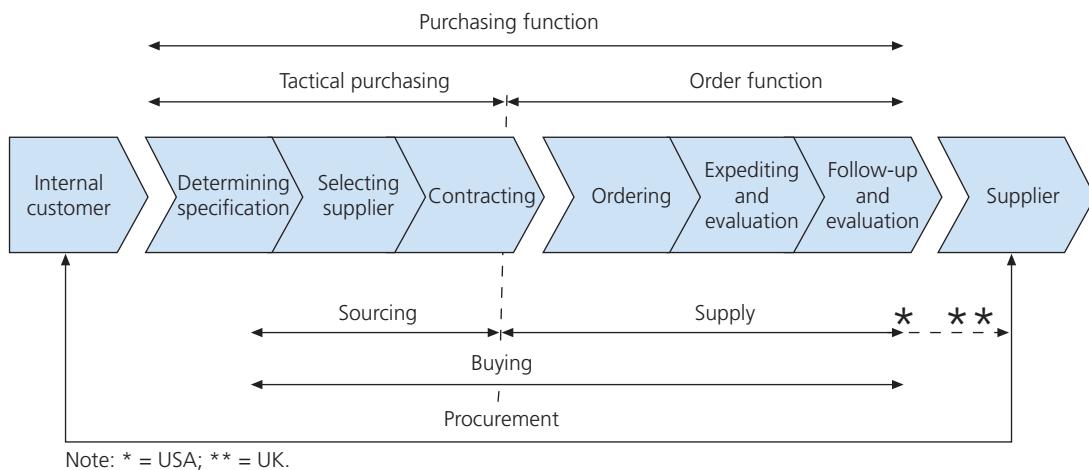
The *procurement function* in this definition covers activities aimed at assessing whether the company should consider make or buy, i.e. secure the incumbent need from its own resources versus external resources.

- determining the procurement needs, i.e. specifications (in terms of required quality and quantities) of the goods, services and solutions that need to be bought
- selecting the best possible supplier and developing procedures and routines to be able to do this
- deciding what contract to put in place, and preparing and conducting negotiations with the supplier in order to establish an agreement and to write up the legal contract
- placing the order with the selected supplier using efficient purchase order and order follow-up routines
- monitoring and control of the order to secure supply (**expediting**) while checking the suppliers' invoices against agreed terms and conditions
- follow-up and evaluation (settling claims and disputes, keeping product and supplier files up-to-date, reviewing supplier rating and supplier ranking).

Figure 1.1 schematically illustrates the main activities within the procurement function. It shows that these activities are closely interrelated. This figure is referred to as the (linear) procurement process model.

Expediting Following up on a purchase order to make sure that the supplier is going to perform as it has confirmed through the purchase order confirmation. There are three types of expediting, i.e. routine status check, advanced status check and field expediting.

Figure 1.1 The linear procurement process model and some related concepts



Quality Quality refers to the total of features and characteristics of a product or service that have a bearing on its ability to satisfy a given need (American National Standards Institute). Quality is meeting (internal or external) customer requirements that have been formally agreed between a customer and a supplier.

Procurement department The department of a company or public organization responsible for executing and managing procurement processes.

Procurement function Covers activities aimed at determining the procurement specifications based upon ‘fitness for use’; selecting the best possible suppliers and developing procedures and routines (e.g. setting up supplier selection criteria) to be able to do so; preparing and conducting negotiations with suppliers in order to establish an agreement and to write up the legal contract; placing the orders with the selected suppliers or developing efficient purchase order and handling routines; monitoring and control of the orders to secure supply (expediting); following up and evaluating (settling claims, keeping product and supplier files up-to-date, reviewing supplier rating and supplier ranking).

The procurement function does not include the responsibility for MRP, materials scheduling, inventory management, incoming inspection and **quality** control. However, in order to be effective, procurement operations should be closely linked and interrelated to these materials management activities. In the authors’ opinion, a procurement manager should support each of the six activities mentioned earlier. However, this does not necessarily imply that all these activities should be conducted by the **procurement department**, as illustrated in the following example.

A buyer who is responsible for MRO supplies is often confronted with the ‘small-order problem’. Many requisitions which they receive from internal departments concern the need for one (or a few) simple product(s) of low expense. Handling these requisitions and translating these into a purchase order, however, is often a laborious task if that buyer is to issue a purchase order for every requisition. An alternative may be to arrange for a so-called ‘catalogue’ agreement with a specific supplier, for example for the delivery of mechanical tools. In this agreement, they may establish the product range which will be bought from that supplier including the list prices per product. They may agree with the supplier that the latter will provide a web-based catalogue to their company, enabling employees and technical staff to order electronically directly from the supplier without involving the procurement department. Furthermore, they may negotiate a bonus from that supplier tied to the total procurement turnover for 12 months.

In this example, it is the task of the buyer to develop an overall commercial agreement with the supplier and establish an online catalogue and an efficient (electronic) order routine that works for both the supplier and the buyer’s internal customers. In fact, what happens is that the ordering function is delegated, in a rather controlled way, to the internal customer. In this manner, it is possible to combine the buying power of the organization with optimal flexibility and efficiency for the internal user.

From the definition of procurement, it may be derived that its scope covers everything for which the company receives an invoice. Hence, the arena of procurement includes inter-company business, counter-trade arrangements, hiring of temporary personnel from outside agencies and contracting advertising agencies. However, many of the products and/or services for which the company may receive invoices from suppliers may be arranged without interference from the procurement department (this will be discussed later). Therefore, the scope of the **procurement function** is usually much broader than that of the procurement department.

The term *ordering* refers to the placing of purchase orders with a supplier against previously arranged conditions. Furthermore, this term will be used when purchase orders are placed directly with the supplier, without questioning the supplier’s conditions and without sufficient supplier market testing. Call-off orders fall into this category, as well as telephone orders for products bought from a supplier catalogue. Ordering is considered to be part of the procurement process.

It is difficult to find a description of *buying* in management literature. It differs from procurement in the sense that it does not encompass the first step of the procurement process (i.e. determining specifications). This is in line with the practice of trading and retail companies (e.g. department stores), where the term ‘buying’ is most often applied. Here, discussions about the specifications of products to be purchased are less complex than for industrial companies, since in many cases the supplier decides these. Buying therefore relates to the commercial activity of soliciting competitive bids from a limited number of suppliers and negotiating a final contract with the lowest bidder. Several negotiation rounds may be required before closing a final deal.

Purchasing differs from buying and ordering in one important aspect: while specifications may be given in the situation of ordering and buying, these are challenged when it comes to purchasing. Purchasing relates to situations where buyers engage in discussions with internal users about the degree to which the specifications for products to be purchased are really fit for purpose. Features that are not necessary for meeting the function which the product needs to fulfil are challenged by the buyer and benchmarked against what is available on the supply market. This often leads to a situation where an (expensive) supplier branded product is replaced by an identical product from a lesser-known supplier. However, challenging specifications will not always lead to changes, since internal users might react emotionally when they are challenged and decide to push through to get what they want, even if this is more expensive. Also, many buyers are not even in the position to challenge the specifications, because they are not involved early enough in the process by the internal users.

As can be seen from Figure 1.1, *procurement* is a somewhat broader term. It includes all the activities required to get the product from the supplier to its final destination. It encompasses purchasing stores, traffic and transportation, incoming inspection, and quality control and assurance. Many firms also consider recycling (as they are related to materials) to be a part of this (refer also to Memo 1.1) because of its growing importance in recent years, with the increasing impact of environmental issues. Procurement is based on **total cost of ownership**-thinking and considers all direct and indirect costs involved in acquiring goods and services. When buying a copier, it may be more important to look at the price per copy (based upon all costs associated), rather than the purchase price of the copier itself.

Total cost of ownership (TCO)

Relates to the total costs that the company will incur over the lifetime of the product that is purchased.

Memo 1.1

Purchasing versus procurement: what is the right term to use?

As purchasing has evolved as a business function, the terminology to denote this activity in business has changed. Over time, procurement seems to have gained in popularity, at the expense of purchasing. What is the right term to use? This is not clear. Some companies avoid the discussion by defining purchasing as 'third-party spend management'. Clearly, in the public sector, procurement is the preferred term. However, in many industrial and service companies, purchasing is preferred over procurement. However, during the 2010s, more and more private companies rebranded

their purchasing functions into procurement (e.g. Unilever, Philips, Apple, Pfizer). Both terms relate to the entire purchasing process, ranging from how to arrive at specifications up to securing delivery and supplier evaluation. Academically there are slight differences (as shown in the table below).

Whether to use the term purchasing or procurement seems to be a matter of personal preference. Given the sliding scales between the two concepts, we will use both terms as synonyms in this book.



	Purchasing	Procurement
Focus	Price versus functionality	Total cost of ownership
Scope	Purchasing process	Purchasing process + supply chain optimization (first-tier suppliers)
Orientation	Commercial	Commercial + supply chain
Sector	Manufacturing companies (manufacturing, services sector)	Project and process-based activities (construction industry, engineering contractors, chemical industry)

Sourcing Finding, selecting, contracting and managing the best possible source of supply for the whole company on a worldwide basis.

Sourcing category
A discrete category of goods or services grouped according to the function of those goods and services and mirroring the similar characteristics of their specific supply markets; examples include raw materials, chemicals, components, packaging, professional services, and so on.

Sourcing strategy
Identifies for a certain sourcing category how many suppliers to contract with, what type of relationship to pursue, contract duration, type of contract to negotiate for, and whether to source locally, regionally or globally.

Partner A (supplier) partner is defined as a firm with whom your company has an on-going buyer-seller relationship, involving a commitment over an extended period, a mutual sharing of information and a sharing of risks and rewards resulting from the relationship.

Supply management
Relates to all activities necessary to manage supplier relationships in such a way that first-tier suppliers are aligned with the customer company's overall business strategies and interests.

Although the terms are different, purchasing and procurement in business practice are often used as synonyms. We will use procurement throughout this book (refer to Memo 1.1).

A term which has become increasingly popular in the 21st century is **sourcing**. This activity relates to developing the most appropriate sourcing strategy for a certain commodity or **sourcing category**. A **sourcing strategy** describes how many suppliers the company favours for that commodity or category, what type of relationship to pursue (arm's length or as a **partner**) and what length of contract to negotiate (one year to multi-year). Sourcing is all about finding the best possible supplier for the company on a worldwide basis.

Supply management is somewhat more difficult to grasp because it appears that there are differences in connotation between North America and Europe. In the United States 'supply' covers the stores function of internally consumed items such as office supplies and cleaning materials. However, in the UK and Europe, the term supply seems to have a broader meaning, which includes at least procurement, stores and receiving goods and materials.

In our view, it refers to all activities necessary to manage supplier relationships in such a way that first-tier suppliers are aligned with the company's overall business strategies and interests. It is focused on structuring and continuously improving procurement and supply processes within the customer organization and between the customer organization and its first-tier suppliers. Supply management, hence, has an internal aspect and an external aspect. The idea behind supply management is that if suppliers are not managed by their customers, customers will be managed by the suppliers. Given the widespread acceptance of marketing management, customer development and strategic account management in business, suppliers are usually in a favourable position.

Supply management is related to *supply chain management*. The latter concept can be described as the management of all activities, information, knowledge and financial resources associated with the flow and transformation of goods and services from the raw materials suppliers, component suppliers and other suppliers in such a way that the expectations of the end-users of the company are being met or surpassed. Supply chain management differs from procurement in that it also encompasses all logistics activities. Moreover, it entails the management of relationships not only with first-tier suppliers but also with lower-tier (second- and third-tier) suppliers. An example is Ford, which urges its suppliers of exhaust-systems to use one steel contract. Both Ford and its suppliers are buying steel; by combining the contract value of all parties involved, they can benefit from better terms and conditions provided by Ford's steel supplier (refer also to Memo 1.2).

Value chain management, finally, builds on the former concept. Here the idea is that suppliers and/or supply chains are challenged to improve the (buying) company's value proposition to its (end-)customers. Usually, the suppliers work closely with the (buying) company's technical and marketing staff to reduce the product's overall costs, come up with new designs or add new features to the product which are attractive for the end-customer and that make the product sell better. An example here is Microsoft's X-Box, which was originally developed by Microsoft, but which actually was at the time that it first appeared on the market produced by Flextronics. Flextronics was crucial for the success of the X-Box in that it determined the X-Box's cost price and, hence, the consumer price of the product.

Memo 1.2

Supplier relationships at Volvo

PURCHASING WITHIN THE VOLVO GROUP

Volvo Group² is the renowned manufacturer of heavy-duty trucks and marine equipment. The company employs one of the largest purchasing departments in the world. During 2015, the total spend on goods and services amounted to approximately €21 billion. In its first tier, the Volvo Group has around 36,000 suppliers and subcontractors of which about 6000 supply parts for the Group's end products. Volvo Group believes that behaving responsibly is the only foundation on which a sustainable business can be built. For this reason, the principles in their Code of Conduct are applied in all their procurement processes.

Responsible purchasing involves encouraging correct behaviour, managing risks and building long-term relations with suppliers to improve social, environmental and business ethics in the supply chain. The text below, which is derived from the company's website, shows how Volvo Group intends to work with suppliers.

VOLVO GROUP PURCHASING

Volvo Group Purchasing is the global Group function covering the purchase of automotive products and parts including aftermarket, for all truck brands in Volvo Group Trucks. Volvo Group Purchasing has SEK120 billion in annual spend, 2550 suppliers in serial production and 1.9 billion parts delivered to the Group Truck plants annually.

Volvo Group Purchasing also covers the Indirect Products & Services (IPS) Purchasing. IPS optimizes the supplier base and drives standardization and sourcing of all goods and services for the Volvo Group, including facilities, consumables, production equipment, labour, fluids and the Group's development service area, and engineering, marketing, sales and printing, and travel.

Next, Volvo Group Purchasing includes the purchasing operations for Volvo Construction Equipment (VCE), Volvo Bus and Volvo Penta.

SUPPLIER

RELATIONSHIPS



Being a Volvo Group supplier means belonging to a global network consisting of 36,000 high performing suppliers from countries all over the world adding real business value to the Volvo Group. Suppliers should deliver state-of-the-art quality with perfect precision right through the supply chain, from project planning and in production facilities right through to delivery to their plants and customers. Volvo Group also expects aftermarket suppliers to submit offerings for a complete product life cycle that minimizes vehicle off-road time, and to offer a service level that supports zero incident promises to customers. Next, Volvo Group expects committed, pro-active collaboration that helps achieve cost savings, meets environmental and fuel efficiency targets, and develops new innovative technologies.

BUSINESS VALUES

Volvo Group Purchasing aims to develop suppliers as partners. It does this by selecting high performing suppliers that deliver the best possible products and superior services that add real business value to the Volvo Group, on both a global and regional basis.

Quality has gradually come to mean more than quality assurance itself. Volvo's suppliers must be able to take complete responsibility for environmental impact as well as a holistic view regarding material handling and information exchange. The ability to achieve effective continuous improvement requires good knowledge of modern tools and methods that are offered by quality technology.

Together with its suppliers, the Volvo Group has a clear responsibility to reduce environmental impacts from transport and other services. Volvo's suppliers believe in environmental care and actively work with environmental resource management and environmental management systems such as ISO 14001 and EPA/SmartWay.

² Volvo Group is not to be confused with Volvo Cars. The latter is a manufacturer of cars for private and business use. It was acquired from Ford in 2010 by Geely Corporation, China.

Suppliers and contractors to the Volvo Group deploy and respect ethical standards throughout the supply chain. Volvo's commitment and approach to corporate social responsibility (CSR), sustainability, environment and safety, in compliance with the principles of its Code of Conduct, are integrated into its policies and implemented through everyday business decisions and actions with suppliers.

After passing the initial screening, a new supplier will be enrolled in a Supplier Evaluation where it must comply with the Key Elements Procedures (KEP).

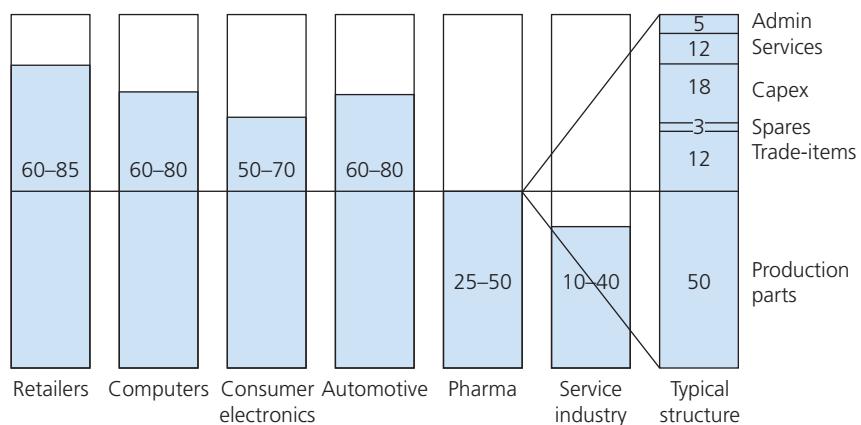
When shipping products to any country outside their own, a supplier is responsible for calculating the Regional Value Content of its products. Every supplier is required to submit a Certificate of Origin for goods annually, as well as with each shipment in regions where this is required.

Source: © Volvo. Reproduced with permission.

Importance of procurement to business

An analysis of the cost structure of manufacturing companies immediately shows the importance of procurement to business. In general, the largest part of the cost of goods sold (COGS) or sales revenues appears to be taken up by purchased materials and services. Figure 1.2 shows that the average procurement value, which relate to components that make up the final product, in relation to COGS is approximately 50 per cent. If the other business costs which have an important procurement component are added to the purchasing value, the total procurement value may amount to 60–80 per cent.

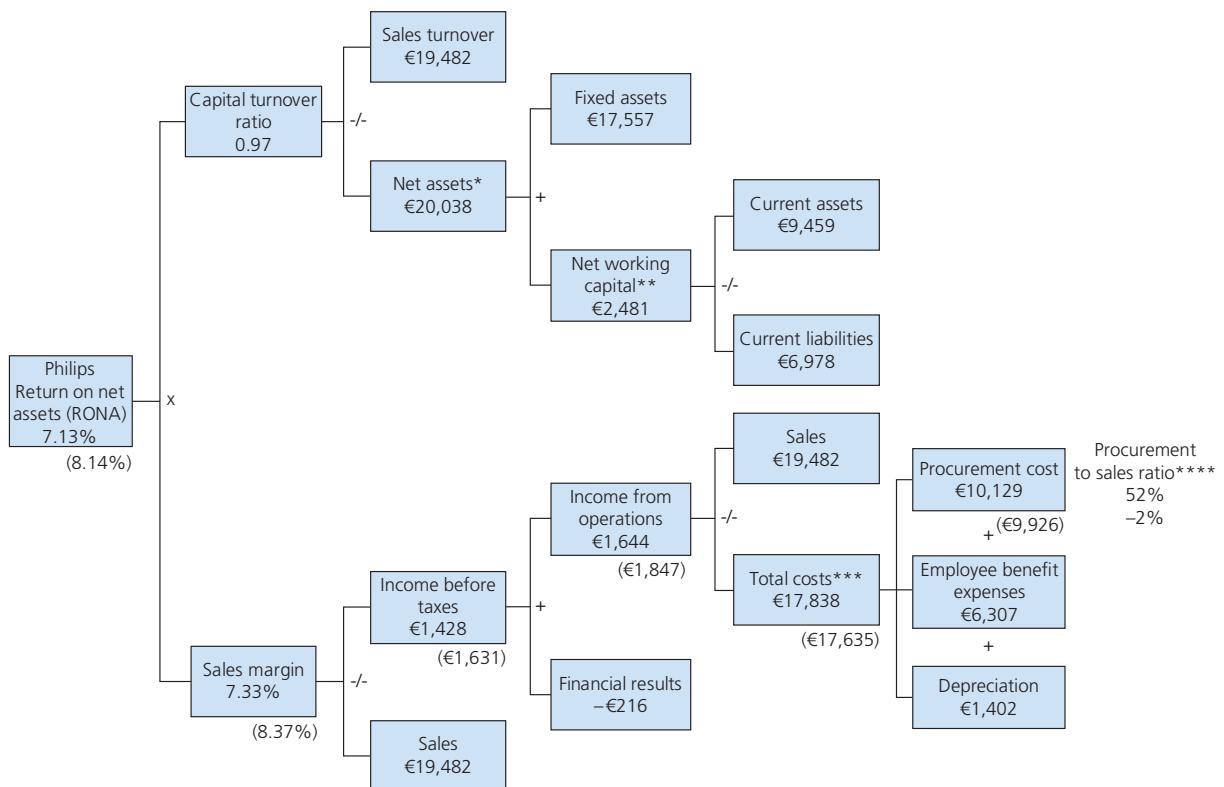
Figure 1.2 Purchased goods and services as a percentage of cost of goods sold



The effects of purchasing savings on the company's return on net assets (RONA) are illustrated through the DuPont chart in Figure 1.3. Net assets can be defined as fixed assets plus net working capital. It represents the total amount of capital that has been utilized for generating profits and for which the company needs to generate an income. Net working capital equals current assets minus current liabilities. Figure 1.3 shows how a 2 per cent saving on procurement-related expenditure for a company (in this case Philips) may lead to an improvement in the RONA of 14.2 per cent. Of course, the reverse is also true: an unexpected 2 per cent increase in procurement spend may lead to a reduction in Philips' profitability of 14.2 per cent. Philips' procurement leverage is rather low due to its low capital turnover ratio.

Figure 1.3 Impact of procurement savings on Philips' return on net assets (RONA) (2019, figures in millions of euros)

DuPont Analysis Philips (2019) Procurement leverage effect: a 2% procurement cost reduction leads to a 14.2% RONA improvement.
 (Source: Adapted from data found in Philips Annual Financial Report, 2019, pp. 88–91, p. 115)



Note: *Net Assets = Fixed Assets + Net Working Capital**

**Net Working Capital = Current Assets – Current Liabilities

***Total cost = Total sales – Income from operations

****Procurement to sales ratio: Procurement cost (Spend/Total Sales)

A higher capital turnover ratio represents a much higher leverage of procurement savings on the company's profitability. Retail companies and construction firms usually have a lower profit margin but a much higher capital turnover ratio. Hence, procurement savings of 2 per cent will have a larger impact on the respective companies' RONA. It shows that the impact of procurement savings on the RONA strongly depends on how a company designs its value chain (e.g. level of outsourcing, level of vertical integration, procurement-to-sales ratio) and the efficiency of a company to achieve maximum sales with the minimum amount of capital employed (i.e. high capital turnover ratio).

The **DuPont analysis** shows that procurement contributes to improving the company's RONA in three ways:

- Through reduction of all direct materials costs. This will immediately lead to an improvement in the company's sales margin, which in turn will affect RONA in a positive manner. A number of measures may lead to lower direct materials costs such as a reduction in the number of suppliers, improved product standardization, applying competitive tendering and looking for alternative and cheaper materials.

DuPont analysis

Financial diagnostic tool to calculate the company's return on investment based upon sales margin and capital turnover ratio. Can be used to assess the effect of procurement savings on the company's return on investment (ROI).

Payment terms

Payment terms relate to what, how and when the buyer will pay the invoice for the products and services delivered by the supplier.

- Through a reduction of the net working capital employed by the company. This will work out positively on the company's capital turnover ratio. There are many measures which will lead to a lower capital employed. Examples are longer **payment terms**, reduction of (pipeline) inventories of base materials through just-in-time (JIT) agreements with suppliers, supplier quality improvement (which will lead to less buffer stock required) and leasing instead of buying equipment.
- Through improving the company's revenue-generating potential. Challenging suppliers for new product ideas and process improvements may result in shorter time-to-market and to new customer value propositions that in turn lead to higher margin new products. Since innovations in many industries today come from suppliers, procurement managers are challenged to mobilize their suppliers' expertise and to involve supplier technical experts early in the new product development process.

It can be concluded that procurement policies contribute to business success in several ways. First, procurement policies can significantly improve sales margins through realizing substantial cost savings. One euro saved in procurement is one euro added to the bottom line. Second, through better planning and scheduling and better quality and logistics arrangements with suppliers, procurement can contribute to a reduction of working capital and, hence, the company's cash position. Third, suppliers may contribute significantly, when addressed properly, to the company's innovation processes. However, as companies become more dependent on their suppliers, the strategic value of procurement lies in developing a world-class supplier base which is more competitive than that of the company's main competitors. Looking for the most competitive suppliers worldwide and developing effective relationships with them should therefore be one of the most important concerns of any procurement manager. As has been demonstrated, even small improvements in the relationship with suppliers may have a significant impact on the company's RONA.

The conclusion we can draw from this discussion is that as the procurement to sales ratio (i.e. procurement quote) increases for a specific company, procurement decisions will have a more profound impact on the company's returns. The same goes for the capital turnover ratio. A higher ratio will lead to a greater leverage of procurement savings on direct materials costs. It is therefore important that companies keep track of their procurement expenditure. Next, they need to manage their relationships with suppliers in a professional way. In order to do that, detailed management information is required. Obtaining detailed procurement spend information, however, is quite a challenge in most large companies. Memo 1.3 provides some guidelines on how to proceed on this.

Usually, what companies actually spend on outside suppliers does not automatically follow from a company's annual financial statement. Most companies, for unknown reasons, do not report these figures. As in the example of Philips, these figures need to be derived from the details and descriptions of each of the financial entities in the balance sheet and income statement, which in general requires some analytical work. Those chief financial officers (CFOs) who invest time in calculating the company's actual spend often become enthusiastic to learn about what can be saved through smart and professional procurement, as they quickly realize that any euro saved on procurement will immediately add to the company's bottom line and its profitability. This enthusiasm then often translates into clear targets for the procurement organization to save money on the company's budget.

Memo 1.3

Spend management: the foundation for every procurement strategy

The most important objectives of corporate sourcing programmes are cost reduction, volume consolidation, preventing reinventing the wheel in supplier contract negotiations, generating supply market knowledge and improving supplier performance and business impact.

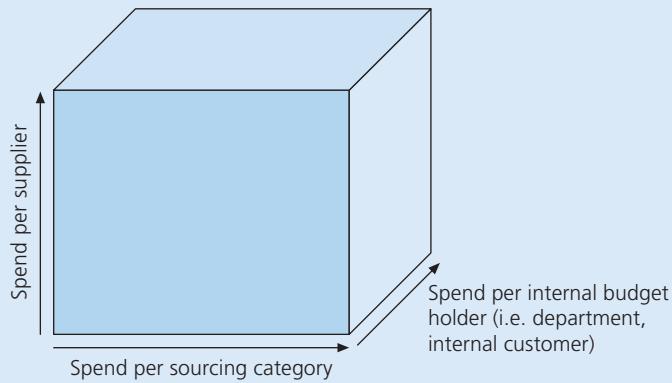
Surprisingly enough, the most difficult part of developing sourcing strategies appears to be the collection of detailed spend information: in many cases corporates do not have a clue what they purchase internationally or what their consolidated spend is. Financial and accounting departments simply are not equipped to provide this type of information. Large corporates cannot, without significant efforts, assess what they have purchased from a certain supplier, or what money they have spent on the acquisition of certain materials and services in different sourcing

categories. A large problem concerns the absence of a corporate-wide, uniform article coding system which can be used to classify procurement expenditure.

For this reason, spend management has become a prime issue. International consultants and IT providers (such as SAP and Oracle) today provide specific software applications to chart purchasing expenditure in detail. Usually, the procurement spend is presented through a so-called 'spend cube' (refer to Figure 1.4). This spend cube allows a company to allocate procurement expenditure from three different angles, i.e. product categories, suppliers and internal budget holders or departments. In this way, the procurement spend cube is an indispensable tool for developing specific sourcing strategies.



Figure 1.4 The procurement spend cube



Certainly, when sales markets are down, it is often easier to improve profitability through bigger procurement savings than through bigger sales. However, when CFOs year after year are chasing their procurement organization for even bigger procurement savings, it will show quickly that there is an end to this game as you can squeeze a lemon only once... In such situations, top managers need to change their view on procurement to allow other and more creative ways to deal with costs and suppliers. As the financial view on procurement is the dominant one, they find it difficult to change their perspectives. Still, it is necessary for top managers to adopt alternative perspectives to allow procurement to develop into a strategic business function (refer to Theory Snapshot 1.1).

Theory snapshot 1.1

The power of theory

In this new edition of the textbook, we present different theories that can be used to explain procurement phenomena. In academic research we as researchers are increasingly encouraged to explain our theoretical perspectives, i.e. theories that we use when we research procurement in the real world.

Different scientists tend to use different theories when they set up and embark on their research. Just to illustrate two extremes of the spectrum: in engineering and technical disciplines scientists use the insights from exact sciences such as mathematics, physics and chemistry. The logic that they use is based upon principles derived from these sciences. A theory may explain why we experience the law of gravity or Einstein's law of relativity. In the exact sciences things only exist if they can be measured.

At the other extreme of the spectrum, we have sociologists and psychologists who use their theories to explain and forecast human behaviour. Here, we mention the theory of social constructionism that is used by human scientists. This theory holds that truths about human behaviour are based upon temporary working arrangements that may change over time if conditions in which human behaviour manifests itself change. Take for instance the concept of beauty, where the human scientist's view is that beauty is a highly subjective concept. 'Beauty is in the eye of the beholder'. What is considered beautiful in one era is considered outdated in the next (think about fashion). Human sciences are aware that things exist that may not be measurable.

In procurement and supply chain management we currently do not have one dominant theory that can be used to explain all phenomena in our field. Transaction cost economics (TCE) may be used to explain why buyers always will try to negotiate the lowest price. However, this theory cannot explain why suppliers do

not want to engage in sharing their innovations with buyers. TCE may also be insufficient to explain why managers are sometimes reluctant to work with the procurement organization to obtain cost savings on their budgets. Most managers hate to do this since they know from experience that if they save money on their budget, they will get less budget the next year. Here, theories on organizational behaviour or psychology may be more effective in understanding why this happens and what remedies can be developed to overcome this.

This is why we decided to include several theoretical perspectives throughout this textbook. Theories and theoretical perspectives are used as lenses to look at the world around us. How you look at the world determines what you see. When looking at procurement phenomena it is important to agree on what lens (i.e. theory) to use. If people look at the world from totally different perspectives (for example, managing the procurement function from a financial perspective versus from a sustainability perspective), they may never agree on the key problems. And if they do not agree on the key problems at hand, they will never agree on the solutions to solve these.

The power of theory is that you may use different theories to solve different problems. When you learn to look at problems from different theoretical perspectives, this will open up a bigger solution space. This is important since it was Einstein who once said: 'We cannot solve our problems with the same thinking we used when we created them'. Many problems in procurement and supply chain management are wicked problems that in our view can only be solved if we are able to look at them from different perspectives. Theories help you do this.



Classification of purchased goods

The procurement process may concern a large variety of goods and, of course, services. In general, purchased materials and services can be grouped into the following categories:

- Raw materials. Raw materials are materials which have undergone no transformation or only minimal transformation, and they serve as the base materials for a production

process. We may differentiate between physical raw materials, such as iron ore, copper ore and lithium, and natural raw materials, such as palm oil, soya and coffee.

- Supplementary materials. These are materials which are not absorbed physically in the end product; they are used or consumed during the production process. Examples of this type of product are lubricating oil, cooling water, polishing materials, welding electrodes and industrial gases.
- Semi-manufactured products. These products have already been processed once or more, and they will be processed further at a later stage. They are physically present in the end product. Examples are steel plate, rolled wire and plastic foils.
- Components. Components are manufactured goods which will not undergo additional physical changes, but which will be incorporated in a system with which there is a functional relationship by joining it with other components. They are built into an end product. Examples are lamp units, batteries, engine parts, electronic parts and transmissions. A distinction can be made between specific, customized components and standard components. Specific, customized components are produced according to the design or specification of the customer, whereas standard components are produced according to the specification of the supplier or an industry standard.
- **Finished products** or trade items. These encompass all products which are purchased to be sold, after negligible added value, either together with other finished products or manufactured products. Examples of this product category are accessories which are supplied by car manufacturers, such as navigation systems, roof systems, car stereo systems, alloy wheels and tyres. The manufacturer does not produce these products but obtains them from specialized suppliers. Commercial products and articles sold by department stores are also in this category.
- Investment goods or capital equipment. These are the products which are not consumed immediately, but whose purchasing value is depreciated during its economic life-cycle. In general, the book value is stated on the balance sheet annually. Investment goods can be machines used in production, but they also include computers and buildings. These examples illustrate the varied character of this category of goods.
- Maintenance, repair and operating materials (MRO items). These products, sometimes referred to as **indirect materials** or consumable items, represent materials which are necessary for keeping the organization running in general, and for the support activities in particular. These products are often supplied from stock; examples are office supplies, cleaning materials and copy paper, but also maintenance materials and spare parts.
- Services. Services are activities which are executed by third parties (suppliers, contractors, engineering firms), or other business units of the company, on a contract basis. Services can range from providing cleaning services and hiring temporary labour to having a new production facility for a chemical company designed by a specialized engineering firm (a contractor).

Having defined the most important categories of purchased goods and services we now turn to a short description of major new developments going on in the area of procurement and supply chain management.

Finished products These encompass all products which are purchased to be sold, after negligible added value, either together with other finished products or manufactured products (identical to trade items).

Indirect materials All purchased materials and services that do not become part of the company's value proposition. May be classified into MRO supplies, investment goods (also referred to as capital expenditure, or CAPEX) and services (identical to non-BOM⁴ materials or non-production materials).

Challenges and changes in the procurement context

Many companies are now confronted with diminishing growth opportunities, which results in a situation where an increase in sales turnover can only be realized at the expense of the competition and only with a great deal of effort. This leads to increased pressure on sales prices and consequently on cost prices and margins, which causes two developments. On the one hand, it results in shifts of power between buyers and suppliers in many markets. Due to the fact that in many cases the market has changed from a buyer's market to a seller's market, the role of the supplier is now more dominant than a number of years ago. On the other, the increasing pressure on sales prices and margins results in an increased pressure on direct materials-related costs. Because the procurement prices determine the sales prices in the industrial and trade sector to a large extent, companies will be constantly on the lookout for opportunities to keep these prices as low as possible. As a result of both developments, the sourcing strategies of industrial companies have undergone major changes. Several examples of these changes are presented below:

Global sourcing

Proactively integrating and co-ordinating common items and materials, processes, designs, technologies and suppliers across worldwide procurement, engineering and operating locations.

- **Global sourcing.** As the company's competitive position is directly related to the competitiveness of its supply base, companies have adopted a global scope towards sourcing. For example, food ingredients, electronic components and IT services are increasingly sourced globally, a reason why large organizations have set up international procurement offices (IPOs) in different regions of the world. Procurement professionals, hence, are forced to adopt an international scope towards their supply markets. Supplier benchmarking, being able to deal with different cultures effectively and being able to negotiate in different languages have become prerequisites for today's procurement professional.
- Leveraged sourcing strategies. In companies with several manufacturing plants, business units and/or operating companies, important savings can be realized by combining common materials requirements. A trend towards leveraged or co-ordinated sourcing strategies is apparent in many large European companies. Traditionally this was already common for raw materials, which most of the time were contracted at a corporate level. At present, however, a similar approach is used for sourcing categories like computer hardware and software, business services (e.g. travel, logistics), capital goods and components.
- Sustainable sourcing. Corporate social responsibility and business integrity and environmental and climate related challenges are becoming more and more prevalent. National governments have become stricter in their regulations on this point. In Western Europe strict regulations on industrial and consumer packaging apply. All superfluous packaging needs to be avoided (e.g. blister packaging); aluminium cans are, in some countries, charged for and need to be collected. Manufacturers of packaging will increasingly be held responsible for its disposal after use and recycling. Large car manufacturers, such as Daimler, BMW and Volkswagen, design and construct their cars in such a way that the different parts and components can be easily disassembled and reprocessed at the end of the car's lifespan. Volkswagen has even founded its own rework facilities for this purpose. Apart from environmental issues, there is a growing pressure from the public that products should be sourced from suppliers that comply with high ethical and social standards. One of the leading companies

in this area, Unilever, has formulated a clear purpose aimed at making sustainable living commonplace. It formulated 12 fundamental principles (e.g. fair wages, health and safety, no child labour, anti-corruption and bribery) that led its sustainable sourcing and business partnering activities. Procurement professionals should ensure that the products and services they buy come from sources of high integrity. This poses new and important challenges to procurement.

- Resource scarcity. As the world population is expected to grow towards 10 billion by 2050, this will lead to unprecedented demand for basic resources such as water, agricultural land and food products as well as oil, gas and energy. Resource scarcity will become manifest in unstable demand and supply situations, high price volatility of the commodities involved and shortages of supply (refer also to Memo 1.4). This poses new challenges for procurement professionals who need to develop a much more proactive outlook on how best to secure the company's future requirements for critical materials and products.
- Digitalization. Existing and emerging digital technologies (e.g. e-sourcing, big data, blockchain, artificial intelligence, robotic process automation) not only enable companies to improve their procurement processes internally but also their relationships and collaboration with suppliers across their supply chains. Digital technology significantly improves productivity in procurement. An integrated approach towards supply chain management requires close co-operation between sales and operations planning, inventory control, quality inspection and procurement. To achieve successful integration, system standardization is a prerequisite. Next, suppliers should be seamlessly integrated within these digital applications. Hence, the capability of a supplier to link up with the buyer's systems (sometimes referred to as 'e-readiness') becomes a much greater concern for procurement professionals when selecting new suppliers.
- Supplier involvement in innovation and/or new product development. As more and more innovations in industry come from suppliers, getting them involved in the new product development process becomes an issue of prime concern. In many industries both the rapid development of technology and the cost related to developing new products force large organizations to work more closely with their suppliers (i.e. supplier enabled innovation (SEI), **early supplier involvement (ESI)**). In doing so, procurement professionals need to alter their traditional ways of working and their relationships with suppliers. It should be decided at an early stage what part of the development process will be done in-house and what part will be delegated to suppliers.
- Cross-functional sourcing. Being able to work in cross-functional teams and having a sound technical background also become important prerequisites. Procurement professionals should be able to solve conflicting interests between different departments (e.g. engineering, production, logistics) and come up with clear solutions on how to reward innovative suppliers for their valuable contributions and ideas during new product development projects. Gain and risk-sharing agreements will replace traditional price negotiations and agreements, enabling a more intensive and long-term relationship with these suppliers.

Memo 1.4 provides an illustration of some of the challenges that lie ahead for procurement professionals.

Early supplier involvement (ESI)

Situation where the supplier is involved by the buyer at an early stage of the new product development process.

Memo 1.4

Resources: from future worries to today's crises

Worries over future resource scarcity, most notably in food, minerals, water and electricity, have been background issues now for several years, generally highlighted by international institutions. The challenge is that the future is catching up rapidly with us – tomorrow's resource worries are becoming today's resource crises – as we start to see the manifestations of long-term trends. One sign of these pressures is price volatility and supply imbalances in supply markets for key resources, reflecting the growing demands of high growth economies (e.g. China) and the growing global middle class. Resource challenges are exacerbated by long-term climate and environmental change impacting the distribution of resources.

At worst, we are seeing the start of resource crises which could lead to increased poverty, social unrest and potentially conflict. At best, the supply–demand imbalances we face are driving us to do more with less, focus on the legacy we hand to the next generations and to innovate. What does this new age of resource crises look like in practice? What are the implications for business? What innovations could help us overcome the challenge?

The combination of a population boom, increasing incomes and urbanization worldwide, particularly in emerging and developing economies, is accelerating the demand for natural resources including water, food, metal and energy resources. Water could possibly be the 'new oil' increasing potential conflicts within and between nations over control of water supplies. Metals and food prices have seen sharp increases, driven by long-term trends rather than isolated events, and greater volatility. Energy use continues to rise, and meeting future energy challenges requires a rethink. Many governments already have targets for the use of renewable and cleaner energies, with the aim of lowering dependence on more traditional energy sources. Scarcity of valuable resources empowers resource-rich countries giving them geopolitical and business advantages, while major raw material importers most likely will accelerate investments to secure supplies from resource-rich countries (e.g. in Africa).

Source: Adapted from Malnight, T.W. and Keys, T.S (2012) *The Global Trends Report*, Strategy Dynamics Global Limited.



The challenges and changes in the procurement context described in this chapter show that procurement represents a challenging business function. Many of the challenges involve different stakeholders (e.g. suppliers, NGOs, governments, institutions) each with their own values and interests. Therefore, it is very clear that no individual procurement professional can provide the solution. It requires intensive interaction, communication and co-operation with other disciplines inside the organization and with suppliers and other stakeholders outside the organization. As a result, procurement is developing increasingly into a cross-functional business function which cuts across other disciplines. Managing the procurement function requires a thorough understanding of all the procurement processes that take place within the organization and of the end-to-end supply chain processes that take place outside. Next, it requires a good understanding of business strategy and of managing strategic change across multiple stakeholders. Only then can these challenges be dealt with effectively.

Summary

Globalization of trade, the fast development of digital technology and ever increasing consumer demands are changing the international competitive landscape. As a result, companies are adapting their business models. Positioning the company at the right place within the value chain has become a prime concern for top managers. For this reason, companies have started to rethink their core and non-core activities. With their core activities companies try to develop and offer a distinctive value proposition to their targeted customers. Non-core activities are increasingly outsourced to specialist suppliers. This has put procurement in the spotlight. Given the high procurement to sales turnover ratio which can be observed nowadays in many companies, procurement has developed into one of the key business drivers. Its main purpose is to develop a competitive, world-class supply base for the company. In order to be able to do so, companies need to adopt a process orientation rather than a functional orientation towards procurement.

Procurement encompasses everything for which the company receives an invoice. Based upon this broad scope of procurement, we have differentiated between direct and indirect procurement. Both are important activity domains within procurement, though each has a different logic due to their different characteristics. Traditionally direct procurement has received the most attention. However, this picture is rapidly changing.

Although developed some years ago, Porter's value chain is still a useful concept for explaining the role the procurement function has for many companies. Contrary to Porter's opinion, we have stressed the strategic relevance of procurement to organizations. We have explained our view by using the DuPont model. This model enables procurement managers to demonstrate the sensitivity of their company's financial results to procurement savings and to increasing procurement spend. As we have seen, the leverage effect of procurement can be enormous, depending on a company's procurement to sales ratio and capital turnover ratio. Procurement can contribute in several ways, both in a quantitative and qualitative way, to improve the company's bottom line and top line.

In shaping their procurement strategies, companies can use different connotations and definitions related to the scope of procurement, ranging from ordering, buying and purchasing to procurement, sourcing, supply (chain) management and value chain management. As the function goes through each of these definitions, the scope of procurement broadens as well as its (financial and/or strategic) business impact. New challenges lying ahead will change the scope and role of procurement within organizations. The most important ones are global sourcing, involvement of suppliers in new product development, emerging digital technologies, resource scarcity and socially responsible procurement. Without doubt these challenges will put procurement more in the spotlight in many organizations.

Assignments

- 1.1** Take the annual report of a listed company and determine the procurement-to-sales ratio. Using the DuPont chart, calculate the effect on RONA of a 2 and 5 per cent saving on the procurement spend. Do the same for a 2 and 5 per cent increase in the procurement spend, ceteris paribus. Describe the elements in the DuPont chart that are directly or indirectly affected by procurement strategies.
- 1.2** What would you consider to be procurement's added value to a company? Mention at least three areas where procurement can contribute. What would you consider to be procurement's core and non-core activities?
- 1.3** What are the major differences between procurement, sourcing and supply management? Would you consider the procurement function to be part of supply chain management or would you favour the reverse? Discuss.
- 1.4** What are the major differences between the activities of the procurement function and the activities conducted by the procurement department? Do you think it is important to differentiate between these two concepts? Why?
- 1.5** The chapter describes a number of new developments in procurement. Describe the major emerging digital technologies and discuss the potential impact they might have on the procurement function in general and on the relationships with suppliers in particular.

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2 The procurement process

Learning objectives

After studying this chapter you should understand the following:

- The major differences between organizational and consumer buying behaviour.
- The key elements of the procurement process.
- The various roles in a buying decision-making unit.
- The involvement of the procurement department in the acquisition of various goods and services.
- How to model organizational buying behaviour.

Introduction

Suppliers will not automatically deliver the right product, at the right place, at the right time, in the right quantity against the agreed price. Before you have established an effective transactional relationship with a supplier, many procurement decisions have to be made. In this chapter we will present the procurement process model as a way to structure procurement decision-making.

The following case study outlines one part of a complex decision-making process related to an important purchase. It involves the contracting of a specific IT solution by a car leasing company. Decision-making processes concerning the purchase of products or services that are still to be developed are generally characterized by a high degree of complexity and uncertainty. For this reason the decision-making in such situations usually involves many disciplines and departments in the organization. In the case study, when deciding about a new IT solution for its sales back office, the management, the IT systems manager, the marketing department, the sales department and the finance department of the car leasing company were involved. In addition, the external consultant and the suppliers involved exerted considerable influence. So, various disciplines and stakeholders were involved, with varying interests and different views and opinions about what should be done. Circumstances such as these often make the procurement decision-making process complex and obscure. When ill-structured, these processes can easily end up in frustration, considerable loss of time and **budget** overruns. Hence, a major question is how decision-making processes in procurement can be structured in such a way that all parties involved arrive at solutions which are satisfactory to them.

Budget A budget serves as a vehicle for delegating activities and responsibilities to lower management levels in the organization.

In this chapter different models that are available to answer this question will be explained, starting with the main differences between organizational and consumer buying behaviour. Next, the procurement process will be described in more detail. Finally, some sources from business marketing theory on how organizational buying behaviour can be modelled and analyzed are described.

Case study

Buying a new IT-system in a car leasing company

The management of a car leasing company has requested its business systems manager to prepare a proposal for further automation of all activities related to customer order handling. This management decision is in line with the intention to increase the efficiency of the sales back office: in the future, more administrative work must be done with fewer people. Therefore, an IT solution has been designed allowing customers to deal directly with a lot of queries and administrative matters. The management already has its eye on a particular IT system; contact has been made with a software supplier, who has references from the automobile branch.

Documentation has been requested and the systems manager is asked to give an opinion. The systems manager thinks that the management's ideas on further digitization of administrative sales tasks are best elaborated in close co-operation with the future users of the system. A project group is installed, consisting of employees from the internal sales department, the field sales organization, the internal control department and an external consultant. The working group's course is plotted. It immediately becomes clear during the first meetings that there is no apparent fit between the intended software system and the organization's present ways of working. When asked, the supplier states that this is usually the case: the current operating procedures will have to be adjusted here and there. However, before going ahead, the IT systems manager decides to get information from other suppliers.

It appears that adjustments in the sales organizations are necessary no matter what software system management decides to implement. There is no system readily available on the market that corresponds exactly with the organization's present ways of working and future needs. The working group decides to invite another software company to help determine whether the organization will have to develop its own system. The question is: what type of software will qualify? The systems department at headquarters is asked about their experience with software companies. Several names are provided, and it is decided to approach four companies. After talking to these four suppliers, the group decides to go ahead with one selected supplier for the time being.

The supplier in question proposes to start with a thorough analysis of the information needs of the company. Only then can the system requirements be defined. Supervision of these first steps will cost money, of course! A €150,000 quote is submitted and accepted. All this has taken three months.

The activities turn out to be more complex than expected. They also turn out to take much more time than anticipated: it has taken four months to describe the system requirements. Analysis of available software systems is then commenced. This reveals that one system will do, but that a considerable amount of 'application engineering' will be necessary. The software company can be of help in this too. A quotation is solicited which amounts to €650,000. The systems manager has the strong impression that this price is far too high and again wants to invite competitive quotations from other software companies. However, the management is opposed. The current supplier is well informed about the organization's problems. A new supplier would have to start all over, and that would cost too much money and time ...

Organizational buying behaviour: basic characteristics

It is tempting to take the literature on consumer buying behaviour as a frame of reference for studying **buying processes** in organizations. However, it soon becomes clear that these theories have only limited value in this regard. There appear to be major differences between consumer marketing, on the one hand, and business-to-business marketing, on the other. The business-to-business marketer has to deal with companies, governmental organizations or institutions, which need the purchased product to feed, support and maintain their primary and supporting processes. In consumer marketing, however, the marketer faces individuals who strive for an immediate satisfaction of their needs. Table 2.1 summarizes the major differences between the two types of marketing.

Buying processes

Include determining the procurement needs, selecting the supplier, arriving at a proper price, specifying terms and conditions, issuing the contract or order, and following up to ensure proper delivery and payment.

Table 2.1 Main differences between business-to-business and consumer marketing

Aspect	Industrial market	Consumer market
Buying objective	Enable realization of business goals	Personal need satisfaction
Buying motive	Mainly rational	Also emotional
Procurement function	Professional buying	Consumers
Decision-making	Many persons involved, much discussion	Often impulsive, without consulting others
Characteristics	Negotiations, intense interaction	Often without negotiation, little interaction
Product and market knowledge	Large	Limited
Order size	Often large	Mostly small
Demand	Derived demand, may fluctuate strongly	Autonomous demand, relatively stable
Price-elasticity	Rather inelastic	Rather elastic
Number of customers	Mostly limited	Very large
Spread of customers	Sometimes large geographic concentration	Large geographical spread

The following are a few important characteristics of business-to-business markets:

- Professional procurement. Usually, professional buyers are involved in procurement decision-making and purchase operations. Because of their education, experience and responsibilities, buyers usually are experienced and well-informed counterparts in discussions with industrial sales people and account managers, able to challenge the price compared to the value offered.
- **Derived demand.** Most companies sell to other companies. Few manufacturing companies deliver directly to the end-user. For this reason, developments in business-to-business markets are often related to changes which occur in the end-user markets, which can be based on, for example, seasonal factors, fashion trends or regional factors. The computer chip shortage after the COVID-19 pandemic in 2020–21, which disrupted global economies and companies, can also serve as an example here. The pandemic resulted in a steep increase in demand for smartphones, video game consoles and other consumer electronics. As a result, different industries (e.g. automotive, computer, consumer electronics) suffered from unplanned production stops and delays due to a serious shortage of integrated circuit supplies.

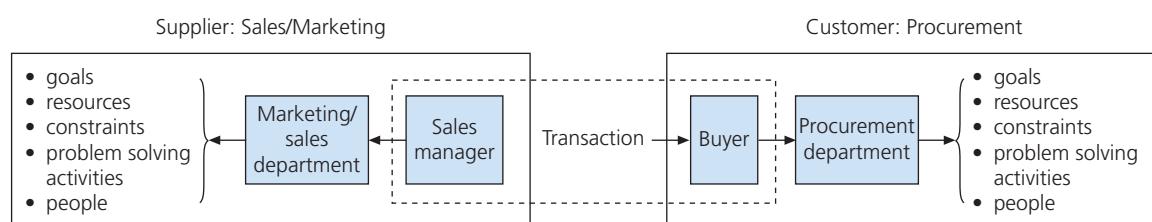
Derived demand Most companies sell to other companies. Few manufacturing companies deliver directly to the end-user. For this reason, developments in industrial markets are often influenced by changes which occur in the end-user markets.

- Inelastic, fluctuating demand. Due to more complex decision-making, the price-elasticity in industrial markets is often lower than for consumer products. Consumers in general react more quickly to price changes than business customers do.
- Geographical concentration. Many business-to-business markets are geographically concentrated (unlike consumer markets, which are geographically dispersed). The European chemical industry, for example, is concentrated in the Ruhr area in Germany, and the automobile industry in southern Germany, France and northern Italy. The electronics and high-tech industry is concentrated in Silicon Valley in the United States.
- Large order quantities and large amounts of money involved. Business-to-business transactions often involve large quantities of goods and services and, therefore, large sums of money.
- Buyer power. The customer market of industrial suppliers often consists of only a few companies. In Europe, the automotive industry – if limited to the producers – is made up of approximately six major independent manufacturers. Manufacturers of fast-moving consumer products are confronted with only a handful of supermarket chains in most European countries. Therefore, only a limited number of buyers may determine the success of a manufacturer's new product.

The most important difference between buying by consumers and organizations is the fact that consumers usually spend their own money. This makes them careful in how and where they spend their money. Most consumers learn quickly from experience and word-of-mouth from other consumers. Social media plays an important role here. Most consumers learn that going for the lowest price usually leads to disappointment, since they cannot have top quality at a discount price. Therefore, they look for a fair price value relationship. This is different from business-to-business, where people usually spend money that is not their own, which makes them less careful. Next, they cannot decide on their own but need to rely on the opinions and preferences of many others.

When the procurement process is not orchestrated properly, this can easily lead to suboptimization, wrong decisions and a waste of money. Another difference between the consumer sector and the business-to-business sector is related to the interaction and (mutual) interdependency between buyer and seller. Unlike the consumer sector, business-to-business markets are often characterized by long-lasting relationships between the buying and selling parties. As a consequence, business-to-business marketers must regard their markets as a network of relationships. Their marketing strategies are aimed at extending, investing in and continuously maintaining these networks. In other words, business-to-business marketing and professional procurement require active management of relationships within complex organizational networks (refer to Figure 2.1).

Figure 2.1 Procurement management requires management of supplier relationships within organizational networks



Models of industrial buying behaviour

Elsewhere we introduced the linear procurement process and its different stages. We will now address the variables that affect the course or the outcomes of this process. We will therefore distinguish between: (1) variables that affect the buying process; and (2) variables that affect buying behaviour.

Variables that affect the buying process are:

- Characteristics of the product. Decisions about the purchase of raw materials differ from, for example, those for the purchase of spare parts. The differences stem from the financial importance (and therefore the influence on the cost price of the end-product) of both types of goods, their technical complexity and the supply risk involved. In practice, many differences in the way the buying process develops can be traced to specific product characteristics. Technical specialists (designers, engineers, technical/maintenance department, etc.) usually make decisions about the purchase of technically complex products. Decisions concerning the purchase of standard-grade, high-volume products (such as raw materials and commodities) are made primarily by financial managers or top management. Purchase decisions about **routine products** are generally left to the lower echelons of the organization.
- Strategic importance of the purchase. The higher the importance of the purchase to the company, the more involved general management will be in the purchase decision. The strategic importance is not merely determined by the amounts of money or the investment involved in the purchase. For example, low-cost **bottleneck products** can sometimes show significant risk in terms of availability and supply, and often turn out to be a direct threat to the continuity of production. Think for instance about some spare parts that are missing for a maintenance job at a paper mill on a paper machine that was purchased 40 years ago. Non-availability of small technical components in practice prevents such machines from being operational at short notice. For this reason, this type of purchase is of prime interest to top management.
- Sums of money involved in the purchases. As the amounts of money involved increase, management's role in the purchase decisions will grow. This is why management is often directly involved in negotiations about important raw materials contracts and investment goods.
- Characteristics of the supply market. The approach towards suppliers varies depending on the organization's freedom of choice. In a monopolist or oligopolistic market, negotiations with suppliers will be far more complex and difficult than in markets characterized by free competition. The management of the company will therefore be more involved in the former.
- Degree of risk related to the purchase. As the risk related to the purchase decision is higher, more disciplines will be involved in the process. The case study at the beginning of this chapter illustrates this situation. The risk attached to the purchase decision decreases and the lead-time of the process diminishes as the organization has more experience with the purchase of a particular product or a particular supplier.
- Role of the procurement department in the organization. The tasks, responsibilities and competences of the procurement department vary between organizations. Procurement departments in large companies usually operate more professionally

Industrial buying behaviour Set of internal and external variables and models that explain how organizations make buying decisions.

Routine products
These products produce few technical or commercial problems from a procurement point of view. They usually have a small value per item and there are many alternative suppliers.

Bottleneck products
These items represent a relatively limited value in terms of money, but they are vulnerable with regard to their supply. They are hard to source and can only be obtained from one supplier.

than those in smaller ones, and very small companies usually do not have a specialist in charge of the procurement task. The internal structure of the organization generally governs the way in which the procurement decisions are made.

- Degree to which the purchased product affects existing routines in the organization. The decision-making will be more complex, take more time and require the involvement of more disciplines as the products that are to be purchased require adjustments in the internal organization or necessitate education and training. This situation occurs, for example, when implementing new computer systems and new manufacturing technology. Another example is contracting external accountants. The new accountant needs to become thoroughly acquainted with the administrative processes of their client, which may take considerable time from financial employees.

Based upon the impact of new products and suppliers on the organization's operational processes and routines, three categories of products can be identified: (1) routine products that can be used without any changes or adaptations within the organization; (2) products that require instruction and training; and (3) products that require the adaptation of operational processes and ways of working.

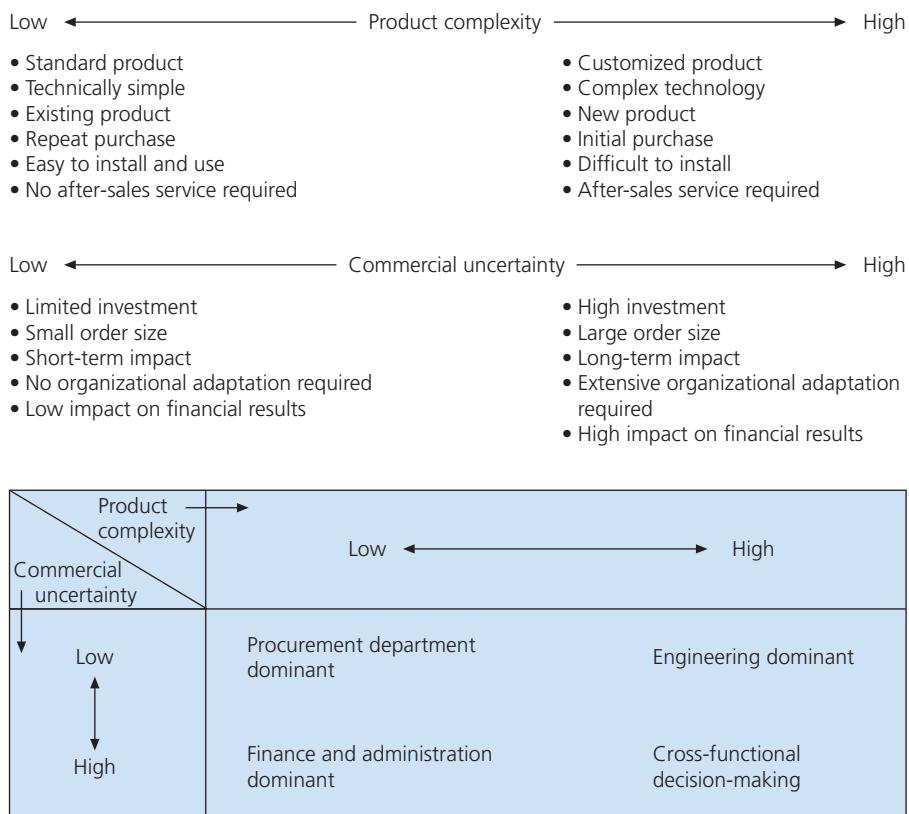
As more adaptation within the organization is required, more disciplines will be involved in the buying decision and the decision-making process will be more complex. As a result, these types of purchases will, in general, generate more resistance against change. Hence, procurement decisions can be differentiated in terms of the expected change and adaptations that need to be made as a result of new products that are bought or new suppliers that are introduced. Other models have been presented in management literature to explain who will be involved in procurement decision-making.

A useful approach here is to differentiate between product complexity and commercial uncertainty. If these two aspects are combined, statements can be made about what disciplines will be involved in the decision-making process (refer to Figure 2.2). Buying situations characterized by a low product complexity mean a low commercial uncertainty can usually be delegated to lower levels in the organization. However, when product complexity and commercial uncertainty are both high, this certainly will call for active engagement of business leaders and financial managers. In the first situation, the procurement department will have a prominent role; in the second situation, the procurement department probably will have a support role.

When analyzing procurement processes and organizations, it is useful to consider the different interests that stakeholders and other persons may have in procurement decision-making. It is useful to differentiate between business interests that are served by the procurement decision, departmental interests and even personal interests that individual people may have in the outcome of the decision-making process. When a construction firm is deciding about the procurement of drill hammers for their construction workers, for instance, interests among the different stakeholders will largely differ. The financial manager wants to spend as little money as possible and will probably be satisfied with providing a Black & Decker (i.e. best price supplier) drill hammer to the construction workers. The warehouse manager would prefer to have one brand and one type of drill in order to keep the inventory levels and working capital as low as possible. The construction workers probably would want a drill hammer that is reliable, robust, easy to use and will support their reputation, which will usually make

Figure 2.2 Typology of buying situations

Source: Adapted from Fisher, L., Industrial Marketing: An Analytical Approach to Planning and Execution, 2nd edn, London: Business Books, (1970).



them go for a Hilti (i.e. premium brand supplier), whereas the procurement manager wants to have a supplier that is reliable in terms of delivery and fast in its response to complaints. This example shows that different stakeholders may have different interests, even personal interests, in the outcome of a procurement process.

Based upon our experience with the procurement practices of many companies, we feel that the importance of social, psychological and emotional factors on procurement decision-making can hardly be overstated. There have been many examples where rational procurement decision-making was blurred and obstructed by the fact that deeply felt emotions and personal preferences were insufficiently recognized. Remarkably, these aspects of procurement decision-making have gained only little interest from researchers up to now.

In general, procurement processes in organizations are complex as they always involve more than one person. Procurement for organizations is all about group decision-making. An important concept here is the **decision-making unit (DMU)**, which is sometimes referred to as the **buying centre**. This includes 'all those individuals and groups who participate in the decision-making process, who share some common goals and the risks arising from the decisions'. Within the DMU various roles can be distinguished:

- Users. These are the people who will work with the product, either on an individual basis or in a group context. It is obvious that the user has an important say when it concerns the specification and selection of the product.

Decision-making unit (DMU)

Relates to all those individuals and groups who participate in the procurement decision-making process, who share some common goals and the risks arising from the decisions (identical to buying centre).

Buying centre

Relates to all those individuals and groups who participate in the procurement decision-making process, who share some common goals and the risks arising from the decisions (identical to decision-making unit).

- Influencers. The influencers are able to affect the outcome of the procurement process by means of solicited or unsolicited advice. In the construction business, for example, architects have an important say not only in the design of a building but also in the choice of materials that are going to be used. When selecting IT hardware, software engineers exert considerable influence on the selection of the computer hardware and the hardware supplier (and vice versa).
- Buyers. Buyers are not necessarily the same individuals as the users. In large organizations, it is often the buyer who negotiates with the supplier about the terms and conditions of the contract and who places the order. Next, they are responsible for orchestrating the procurement process end to end.
- Decision-makers. These are the professionals who actually determine the selection of the supplier. Sometimes the decision-maker is a designer who writes their specifications 'towards' a specific supplier because of positive experiences with this supplier's products in the past. In other cases, the decision-maker is the person who controls the budget.
- Gatekeepers. Gatekeepers are the people who control the flow of information from the supplier towards the other members of the DMU (and vice versa). In some cases, the gatekeeper may be the technical director's secretary who screens contacts with (particular) suppliers. In other cases, the buyer is the gatekeeper, who has the power to decide whether or not to circulate or share specific supplier documentation within the organization.

Table 2.2 relates these roles to the various phases of the procurement process. It can be seen that the importance of individual roles can differ, depending on which phase the procurement process is in.

Table 2.2 Buying centre roles in procurement process (example)

	User	Influencer	Buyer	Decision-maker	Gatekeeper
Identification of need	X				
Specification and requirements	X	X		X	
Supplier prequalification	X	X	X		X
Evaluating supplier offers	X		X		X
Selecting supplier(s)	X		X		
Contract negotiation and closure			X	X	

Source: Adapted from Webster, F. E., and Wind, Y. (1972). *Organizational Buying Behaviour*, Englewood Cliffs, NJ: Prentice Hall.

Procurement process management

In this section, we will further explain the linear procurement process model which was introduced previously. This linear model provides guidance to simple procurement projects. We will elaborate on alternative process models elsewhere by discussing category management and strategic sourcing, which are used by companies to develop specific sourcing strategies to reduce supply risk, optimize cost and value, and to decide what type of relationship to pursue with suppliers.

THE LINEAR PROCUREMENT PROCESS MODEL

Figure 2.3 provides a schematic overview of the most important steps on the linear purchase process model. This model shows how the different procurement activities are interrelated. Some of the important aspects of this model are now emphasized and explained:

- Alignment with business needs. Business needs and requirements are the input for the linear procurement process model. These needs and requirements may be defined in a more general way, or in a very detailed manner. Let's look at the following example. Some years ago, a manufacturer of high-tech modules decided to enter the aerospace business to obtain work with a higher value added and a better margin. More specifically, the manufacturer targeted the design and manufacturing of specialized solar panels for future spacecraft. Since technical requirements are very high in the aerospace industry, the company needed to invest in a high precision milling machine. Hence, the capacity and **technical specifications** of this milling machine needed to be determined in order to be able to contact the correct vendors of this equipment. Having contacted several suppliers, the precise specifications for the milling machines were determined and the **supplier selection** process was started. As a result, the company decided to acquire a multi-million dollar milling machine that allowed them to enter into this new market. This case illustrates how a change in business needs may trigger a procurement process. However, more common is that business needs arise because of new customer orders that are translated into production and operations planning. This production and operations planning is then translated into a detailed planning of future materials requirements that need to be obtained from suppliers. Suppliers need to deliver materials and components fully aligned with the materials planning requests.

Technical specification Describes the technical properties and characteristics of the product as well as the activities to be performed by the supplier.

Supplier selection Supplier selection relates to all activities which are required to select the best possible supplier and includes determining the method of subcontracting, preliminary qualification of suppliers and drawing up the 'bidders' list', preparation of the request for quotation, analysis of the bids received and selection of the supplier.

Figure 2.3 Procurement process approach: managing interfaces

	Define specification	Select supplier	Contract agreement	Ordering	Expediting	Evaluation
Procurement role	<ul style="list-style-type: none"> Get specification 	<ul style="list-style-type: none"> Assure adequate supplier selection 	<ul style="list-style-type: none"> Prepare and negotiate contract 	<ul style="list-style-type: none"> Establish order routine 	<ul style="list-style-type: none"> Establish expediting routine 	<ul style="list-style-type: none"> Assess supplier
Elements	<ul style="list-style-type: none"> Functional specification Technical changes Bring supplier knowledge to engineering 	<ul style="list-style-type: none"> Pre-qualification of suppliers Request for quotation 	<ul style="list-style-type: none"> Contracting expertise Negotiating expertise 	<ul style="list-style-type: none"> Develop order routines Order handling 	<ul style="list-style-type: none"> Expediting 'Trouble-shooting' 	<ul style="list-style-type: none"> Supplier evaluation Supplier rating
Documents	<ul style="list-style-type: none"> Functional specification Norm/spec control 	<ul style="list-style-type: none"> Supplier selection proposal 	<ul style="list-style-type: none"> Contract 	<ul style="list-style-type: none"> Order 	<ul style="list-style-type: none"> Exception report Due date listings Invoices 	<ul style="list-style-type: none"> Preferred supplier list Supplier ranking scheme

Output Relates to the functionality of the service instead of the activity itself or the inputs that are used to provide the service.

Penalty clauses That part of a contract which stipulates what will happen if a supplier does not meet its obligations.

Components

Components are manufactured goods which will not undergo additional physical changes, but which will be incorporated into a system with which there is a functional relationship by joining it with other components.

Tactical procurement function

All activities aimed at defining procurement materials and/or service requirements, supplier selection, contract definition and negotiation.

- Process approach. Throughout this book procurement and supply issues will be considered from a process perspective. The various steps in the linear process model in Figure 2.3 are closely connected. The quality of the **output** of the preceding steps determines to a large extent the quality of the output of the subsequent steps. Deficiencies in one step will lead to problems in the following steps. To give an example, quality problems related to purchased materials often become visible at the end of the procurement process in terms of rejected deliveries (step 5). In practice, however, poor quality of incoming materials can frequently be traced to incorrect or incomplete specifications (step 1), or to an incorrect sourcing decision in that a supplier has been selected who cannot deliver against the required specifications (step 2). Also, the contract may have been incomplete in that it did not provide for any **penalty clauses** as a result of poor quality on delivery (step 3).
- Defining the interfaces. The procurement process model implies that in order to get a full grip on buying operations, the output of each phase is clearly defined. Preferably it should be possible to trace and track every activity in the procurement process. Every consecutive step should only be started when a decision has been made on the previous step. Therefore, it is recommended that the result of each step be documented in the form of a 'go-no-go' document. This will help to structure and formalize the procurement process. The correct process is usually explained in the company's procurement procedures, which are laid down in a procurement manual or handbook, where the roles and responsibilities of the members making up the DMU are explained. When such procedures are absent, this usually results in highly unstructured procurement decision-making processes and operational problems.
- Determining responsibilities. Procurement essentially is a cross-functional activity. Professional procurement is all about professional teamwork. As has been argued before, the procurement process is not limited to the procurement department. Rather than talking about the procurement department, companies need to take their procurement function as a point of departure. Many stakeholders and departments in the organization are usually involved in the procurement function. This demands adequate communication and co-operation among the disciplines involved. The tasks, responsibilities and authority of each department should be indicated in each phase, to prevent misunderstandings and role conflicts. For example, when deciding on specifications of technical components, engineering departments often have the sole authority. Engineering departments, however, are in most cases not responsible for the cost and risks related to the supply base for the supply of materials and components that appear later at the manufacturing stage. What often happens is that engineers, after careful selection, decide to integrate supplier and brand-specific **components** in their final designs, leaving the buyer with a monopolist supplier. To avoid this, decisions on specifications of purchased materials and components, and supplier selection should be a joint activity and responsibility between engineers and buyers. Elsewhere, we will present a framework which may serve as a reference to structure collaboration on new product development between engineering, procurement and suppliers.
- Combining different skills, different types of knowledge and expertise. The first three steps, called the initial or **tactical procurement function**, are primarily

of a technical-commercial nature. The remaining three steps, referred to as the **ordering** or **operational procurement function**, are of a more logistics-administrative nature. A key problem in many companies is how to combine the different types of knowledge, skills and expertise in such a way that all parties involved arrive at an optimal solution for the company. It would be almost impossible to combine all these elements in one person, which is why there is an increasing tendency towards specialization in procurement jobs, while at the same time cross-functional co-operation between different disciplines is growing.

Ideally, each step in the procurement process model would result in a formal procurement document. Important documents for managing the three steps making up tactical procurement are: the procurement order specification, the supplier selection proposal and the contract. Important documents for managing the three steps making up operational procurement are: the purchase order, the delivery document, the invoice and the supplier evaluation. After delivery has been made and the invoice has been paid, the buyer needs to review whether based upon the internal customer satisfaction the supplier will be solicited again in the future for new contracts or orders. Allocating the procurement spend at the best-performing suppliers usually leads to better conditions, better services and far fewer operational problems. It also leads to a situation where the buyer becomes increasingly attractive to the suppliers, as the latter have to invest less acquisition effort in order to grow their business.

Many delivery problems are caused by other departments not requisitioning purchases in a timely manner (often due to lack of preparation and planning). In practice, this leads not only to a higher price being paid (as a result of extra work, express delivery, buying from stock-keeping wholesalers) but also in many cases to higher organizational costs and operational problems (the delivered materials do not comply with the specifications, many partial deliveries, postponed delivery of critical parts). The presented linear procurement model may help managers to structure their procurement decision-making processes and the operational processes involved. The results will not only pay off in terms of lower prices paid for materials and services but certainly also in lower organizational costs and a higher productivity.

There are relatively few situations in which all of the steps in the procurement process are taken. This only happens in the case of a first-time purchase of a product or service. In practice, most procurement transactions involve more or less **straight rebuys**. In general, three types of procurement situations are distinguished:

- The **new-task situation**. This situation occurs when the organization decides to buy a completely new product, supplied by an unknown supplier. This type of transaction is characterized by a high degree of uncertainty and high risk in that the specifications of the product still have to be mapped. The decision-making process is characterized by extensive problem solving and becomes lengthy because various disciplines, distributed across various hierarchical levels in the organization, will probably assert their influence. The new-task situation occurs, for example, in the acquisition of capital goods and the purchase of new components, which must be produced to the organization's specifications (refer to Figure 2.4). The case study of the car lease company at the beginning of this chapter also falls into this category. Another example of a new-task situation is buying components for a newly developed product. In a new-task situation, the company needs to go through each step of the linear procurement process model.

Ordering Ordering refers to the placing of purchase orders at a supplier against previously arranged conditions or when orders are placed directly at the supplier, without questioning the supplier's conditions.

Operational procurement function (order-to-pay) All activities aimed at realizing flawless delivery of purchased goods and services including payment of suppliers.

Straight rebuy Relates to the acquisition of a known product from a known supplier (identical to routine buy).

New-task situation This applies when the organization decides to buy a completely new product, supplied by an unknown supplier.

Modified rebuy Relates to a situation when the organization wants to purchase a new product from a known supplier, or an existing product from a new supplier.

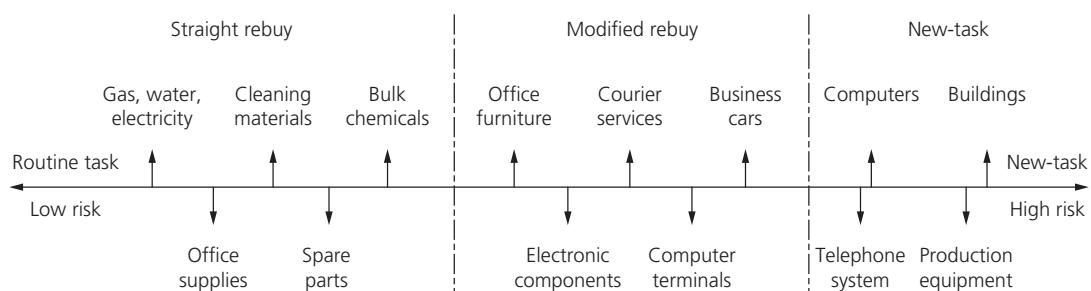
E-procurement solutions Relate to all web-enabled solutions aimed at supporting the procurement process and all electronic data exchange that is needed for efficient transactions with suppliers.

- The **modified rebuy**. This is when the organization wants to purchase a new product from a known supplier, or an existing product from a new supplier. It usually occurs when there is some dissatisfaction about the current supplier, or when better alternatives for existing products have become available. This situation is more certain than the new-task situation because the relevant criteria on how to value the functionality of the product or service, or how to select the supplier, are more or less known. The procurement process focuses in particular on the last five steps of the model and decision-making is characterized by limited problem solving.
- The **straight rebuy**. This is the most common situation and entails the acquisition of a known product from a known supplier. Uncertainty regarding the outcome of the transaction is low because the terms and conditions of the contract are known and are periodically re-established in negotiations with the supplier. In the case of regularly recurring (repetitive) deliveries of identical goods, framework agreements (FWAs) are used that cover the main terms and conditions. Ordering takes place through call-off orders that refer to the framework agreements and are placed directly by the user department through advanced **e-procurement solutions**.¹ This benefits both the speed and efficiency of the transaction (for buyer as well as supplier). In this situation, the procurement process only covers the final three steps of the model. Straight rebuy situations relate to all kinds of routine items and consumable items, such as office supplies, computer supplies, cleaning materials, catering products and maintenance parts. Straight rebuy situations may also relate to bulk products, such as raw materials that are negotiated once a year and then ordered weekly for production. After negotiations with the seller about the contract, orders should be placed directly by the users without interference from the procurement department. As will be explained later, e-procurement systems provide interesting solutions for efficient order handling in this area.

This typology of buying situations explains why the degree of uncertainty and risk that buyers may deal with strongly depends on the type of procurement situation. This is reflected in the way the decision-making process evolves. The higher the sums of money involved and the higher the technical complexity, the higher the perceived risk will be, and the more functions and persons will become involved in the decision-making process. The involvement of these persons, as well as their role, will vary at each step of the procurement process model. In light of the interdisciplinary nature of many procurement decisions, it is essential the decision-making process be well organized. Many problems regarding procurement decision-making and supplier relationships are caused by a lack of organization within the DMU.

Now we have discussed the procurement process in general terms, it is time to look at each step in more detail.

Figure 2.4 New-task situation, modified rebuy and straight rebuy illustrated by some examples



¹Comparable to those offered to consumers by Amazon, Bol.com, Coolblue, etc.

Step 1) The specification phase

During this first stage of the procurement process, the requirements are determined and the company is also faced with the ‘make-or-buy’ question. It has to determine which products or activities will be produced, i.e. performed by the company itself, and which products or activities will be contracted out. In what follows, only the contracting out issue will be discussed.

In general, procurement managers differentiate between **functional specifications** and technical specifications.

A functional specification describes the functionality which the product must have for the user.² For example, when **outsourcing** greenkeeping a buyer may state in its contract with the gardener that they are expected to mow a lawn once every week, using personnel with a specific educational background and using a Honda low-noise, high-performance mower. Alternatively, the contract might state that the gardener will keep the grass at a maximum of one inch, while keeping noise below a certain number of decibels during execution. The difference will be clear: in the first situation, the gardener will probably mow the lawn every week (also during winter), since that is what has been agreed with the customer. In the second situation, the gardener will only mow the grass when needed. The advantages of working with functional specifications will be clear. First, potential suppliers are given the best possible opportunity to apply their expertise. Second, new technologies can be used, technologies that the buyer is not familiar with, but the supplier is. Third, it creates one standard against which all supplier proposals can be evaluated.

A technical specification describes the technical properties and characteristics of the product as well as the activities to be performed by the supplier. Usually these technical specifications are laid down in detailed technical drawings and activity schedules which can be used to monitor the supplier’s activities in detail. This way of working by the buyer can lead to over-specification, where the user imposes requirements on both product and supplier, which can easily lead to higher cost but no better functionality.

Both functional and technical specifications are part of a wider concept, which is referred to as the **purchase (order) specification**. This document (usually a set of documents) comprises the following:

- quality specifications, describing how the product should be delivered (with or without a quality certificate), its functionality and what technical norms and standards the product should meet
- logistics specifications, indicating the quantities needed, the place and time of delivery and the physical conditions to be respected
- a maintenance specification, describing how the product will be maintained and serviced by the supplier (and whether spare parts need to be supplied in the future)
- legal and environmental requirements, determining that both product and production process should be in compliance with health, safety and environmental legislation
- a target budget, which indicates within what financial constraints the solution to be provided by the prospective supplier should be found.

Functional specification Describes the functionality which the product must have for the user.

Outsourcing Outsourcing means that the company divests itself of the resources to fulfil a particular activity to another company, to focus more effectively on its own competence. The difference with subcontracting is the divestment of assets, infrastructure, people and competencies.

Purchase (order) specification Relates to all specifications needed to select the right supplier including quality specifications, logistics specifications, maintenance specifications, legal and environmental requirements, and a target budget

²In this book, the term ‘user’ is employed in a broader sense. It can refer to the person who actually uses the product that is to be bought, but it can also refer to the person who has to make the financial decision about the purchase and allocates the budget.

In the purchase of construction work and civil projects, the purchase order specifications are usually recorded in a scope-of-work description.

The user or budget holder is responsible for specifying the purchase order requirements and the buyer's task is to ensure that the specification is drawn up in objective, supplier-neutral terms. Several manufacturing companies have regulated this responsibility in so-called sign-off procedures. Before a specification is released to a supplier, it must have the formal approval of procurement or the (potential) suppliers. The purpose of this procedure is to prevent misunderstandings in the consecutive stages of the procurement process. In this way the costs of so-called 'technical or spec changes' are reduced. Experience has shown that this type of preparation will result in a considerable reduction of the project's total engineering lead-time.

Technical changes that occur during the project must be dealt with in accordance with the change order procedures. The buyer's job is to ensure that the supplier's work is conducted according to the last specifications sent. Suppliers should ideally confirm each approved change, preferably in writing. Sound configuration management can prevent many problems.

Memo 2.1 looks at what can go wrong when a tender is placed without first assessing the capability of the potential partner to do the task required.

Memo 2.1

High speed railway: Amsterdam, Paris and London

Product specifications may be decided upon without giving sufficient attention to the manufacturing capabilities of suppliers, which leads to unnecessary redesign, rework, extra costs and project delays. Next, orders may be placed at suppliers without a proper prequalification procedure. Later, it may appear that the suppliers that have been selected are not able to meet the product requirements and the internal customers' expectations. This may be especially true when contracting for investment goods in which the involvement of professional procurement staff may be low. The Fyra high-speed train that became operational at the end of 2012 in the Netherlands and Belgium may serve as an infamous example here. This new train, with an investment of over €380 million, was meant to provide high-speed railway transport between Amsterdam, Paris and London to serve as an alternative to airline transport for business travellers. Based upon

a European tender, Ansaldo Breda from Italy produced the lowest bid and as a result got the order. However, Ansaldo Breda had never produced a high-speed train and had great difficulty meeting the safety and operational requirements of the Dutch Railways. Shortly after it was put into operation, the Fyra trains suffered from severe technical problems, as a result of which Dutch Railways decided to put the Fyra, literally, on a side track until all problems were solved. However, these technical problems were never solved and therefore the trains were never put into operation. Problems were exacerbated when it appeared that Ansaldo Breda was suffering from severe financial problems. As the Dutch Railways had a weak court case, they had to settle for an amount that covered only a small part of all the investments made.



Step 2) Supplier selection and supplier assessment

After the procurement requirements have been defined and translated in functional and/or technical specifications, the buyer can start conducting supply market research. In practice, these steps are intertwined. When drawing up the technical specifications, the practical feasibility and the costs are estimated. The selection of

basic technologies – through which the product design will have to be realized – is frequently made with the names of a few suppliers in mind. In practice, the step of ‘selection’ contains three steps: (1) preliminary qualification of suppliers and drawing up the ‘bidders’ list; (2) preparation of the request for quotation and analysis of the bids received; and (3) selection of the supplier. Each of these activities is briefly described next.

The selection of a supplier is one of the most important steps in the procurement process and several activities precede this decision. Activities start with summarizing the prequalification requirements, based on the purchase order specification, that the suppliers who are going to be approached for a quotation will have to meet. Next, the initial bidders’ list (the so-called **bidders’ long list**) that indicates which suppliers may probably do the job, is assembled. Usually, these are suppliers with an excellent vendor rating score, which represents excellent past performance, that will be put on the initial bidders’ list. Next, a **request for information (RFI)** will be sent to each of these long-listed suppliers. These suppliers are contacted to provide references of prior projects and previous experience and other information that will help them qualify for the order. At this stage, it may be necessary to conduct a supplier visit or audit in order to obtain a precise idea of the supplier’s capabilities. Large companies generally work with ‘approved vendors lists’ in order to select the suppliers for the long list. The long list of suppliers is then reduced to a supplier short list. Based upon the information that was gathered, the most promising suppliers are selected. These short-listed suppliers will be contacted through a **request for proposal (RFP)** or a **request for quotation (RFQ)**. At this stage suppliers are invited to submit a bid which meets the requirements as laid down in the RFQ. The idea behind this is that suppliers should submit their bids in such a way that they can be compared by the buyer. An important aspect of their bids is the price they will offer to the prospective buyer.

These activities are commonly referred to as the tendering process. **Tenders** can be formal or informal and can be open or closed. An open tender is a tender without prequalification of suppliers. A closed tender is limited to a small number of suppliers who have been carefully preselected.

Sometimes there is not a sufficient number of approved suppliers available on the market. Then, new suppliers need to be found through thorough supply market research. For important contracts, new suppliers are first scrutinized and screened before any bids will be solicited from them. It is common practice to identify three to five prospective suppliers from whom quotations will be solicited. These suppliers make up the **bidders’ short list**. If circumstances give cause to revise the invitation to bid, then all of the competing suppliers should be given the opportunity to respond to this revision.

After receipt of the quotations, the procurement department will make a preliminary technical and commercial evaluation, during which all relevant aspects are acknowledged. The technical, logistical, quality, financial and legal aspects need to be weighed. Of course, prices are compared, but at this stage most buyers will prefer to look at **total cost of ownership (TCO)**, i.e. the total costs that the company will incur over the lifetime of the product. To be able to do this, detailed cost information must be provided by suppliers. For example, rather than looking for individual car sales prices, lease rates may be used, which reflect much better the total costs to be expected for a car during its contract period. Ranking schemes may be used with a different degree of sophistication to facilitate the process of evaluating the supplier bids. These schemes are employed jointly by the users and buyers involved. Usually this step ends with a supplier selection proposal, which consists of: (1) a decision to select a certain supplier, (2) the underlying ranking schemes and (3) the underlying quotations which have been considered.

Bidders’ long list

Includes those suppliers that meet the buyer’s prequalification criteria and that will be requested to submit a first proposal.

Request for

information (RFI)

Suppliers are invited to submit general information that may help them to qualify for a potential tender.

Request for proposal

(RFP) Suppliers are invited to submit a proposal which meets the requirements as laid down in the request for proposal. An RFP is used when the request requires specialized capability or expertise, or where the product or service being requested does not yet exist.

Request for quotation

(RFQ) Suppliers are invited to submit a detailed bid (or ‘price quote’) which meets the requirements as laid down in the request for quotation against the lowest possible price (identical to request for tender).

Tender Situation where a buyer asks for bids from different suppliers, creating one level playing field (identical to competitive bidding).

Bidders’ short list

Includes those suppliers that meet the buyer’s prequalification criteria and who will be requested to submit a detailed bid.

Total cost of ownership

(TCO) Relates to the total costs that the company will incur over the lifetime of the product that is being purchased.

For strategic and critical suppliers, the next step is to carry out a risk analysis for critical suppliers and purchase parts. During this step, potential risks related to a particular choice of supplier are investigated.

Ultimately one supplier will be selected with whom the delivery of the product (or service) will be negotiated. In some cases, the assignment may be given to two or more suppliers (when dual or **multiple sourcing** is the preferred sourcing strategy). The suppliers who are not selected are informed about the reasons for the rejection of their proposals.

Multiple sourcing

Situation in which a company within a certain category buys from more than one supplier.

Step 3) Negotiation and contracting

After the supplier has been selected, a contract will have to be drawn up. Depending on the industry, the contract may refer to specific additional terms and conditions.

The technical contents of the purchase agreement naturally depend on the product or project that is to be purchased. Specific commercial and legal terms and conditions will vary per contract, differences being caused by, for example, procurement policy, company culture, market situation or product characteristics. This limits the use of standard purchase contracts. The next section discusses several important aspects of the purchase agreement.

Competitive bidding

Situation where a buyer asks for bids from different suppliers, creating a level playing field (identical to tender).

PRICES AND TERMS OF DELIVERY

In general, the buyer should insist on a fixed price, arrived at through **competitive bidding** or negotiation, which is acceptable to both buyer and supplier. Financial obligations should be defined unequivocally. Ideally the supplier should be willing to accept all risks, in so far as these are not excluded contractually. A fixed price is definitely preferred from the perspective of cost control and budget management.

When buying manufacturing equipment, it is recommended that optional prices for future deliveries of spare parts be recorded and, where appropriate, service rates. Finally, when buying from foreign suppliers, currency risks need to be dealt with. This is quite a challenge for international contractors (i.e. suppliers) that operate in the offshore business. The time that elapses between the date of winning the order and the date of completion of the project may easily be a few years. During that period currency exchange rates may change significantly. There are several ways to deal with this. One way is to contract for the materials and services in the same currency in which the company will be paid by its customer. Another way is to work with currency exchange change clauses in the contract, which define how the company will be compensated by its customer in case a currency exchange rate changes. Hedging of currency risk is another option, but this usually is open for contracts with a shorter completion time (less than a year).

TERMS OF PAYMENT

In most procurement transactions, a buyer receives the goods and services first and has a specified period (e.g. 30, 60, 90 or 120 days) to pay the invoice later. While most suppliers would prefer to receive prompt payments, it can help their company earn more business from a buyer to accept later payment. When under financial pressure, large buyers sometimes try to negotiate (or even demand) extended payment terms from their suppliers to improve their cash and/or working capital position.

When capital goods or installations are purchased, it is common practice for payment to take place in several stages, i.e. milestones, partly because the supplier will have to make large investments to be able to produce the desired product. If this method of payment is used, account should be taken of the influence of the payment terms on the final price.

In general, the preferred method of payment is based on the supplier's performance (performance bond). For instance, payment of 20 per cent of the total sum when 25 per cent of the work is completed. The last 5 or 10 per cent of the payment is held back until the client is absolutely sure that the equipment operates exactly as it should or, in the case of a service, that the supplier's work is to the customer's satisfaction.

Advance payments (i.e. a payment that is made before the supplier's invoice date as an obligation to a company after the purchase of goods and services) should preferably be covered by a bank guarantee in which the supplier agrees to fulfil their obligations. Such a bank guarantee completely covers the prepaid sum and is valid for the period of delivery of the part to which the bank guarantee relates. If appropriate, a concern guarantee from the holding company (which is often less expensive) will suffice.

Subsequently, attention should be paid to drawing up an agreement providing specifically for the transfer of ownership.

PENALTY CLAUSES AND WARRANTY CONDITIONS

According to the general purchase conditions of several large companies, suppliers must guarantee with respect to the delivered goods that they are of good quality and completely in accordance with the agreed requirements, specifications, conditions, drawings, samples, etc. and that they are suitable for their intended purpose. Furthermore, the supplier needs to guarantee that the goods will be completely new and free of defects, that new materials of good and suitable quality will be used for the manufacture of these goods, and that first-rate technical and expert personnel will be used.

An important clause in the contract is to agree on what legal system the contract will be subject to. Usually, the supplier will select the legal rules that apply for the country in which it is domiciled. These may be different from the country in which the buyer is located. Whichever system is chosen, it should be arranged that the purchased goods do not contain any risk regarding the health or security of persons, property and environment.

Agreements will also have to be made with the supplier about the performance of the goods to be delivered. In the case of acquisition of investment goods, a performance guarantee can be agreed upon, for example by agreeing that a particular production unit will produce 10 tons of end-product of a certain quality per day. If the agreed performance is not met, corrective measures should first be discussed. If these also turn out to be inadequate then the resulting costs are to be recovered from the supplier. This procedure must be agreed upon in the terms and conditions of the contract. Penalty clauses do not, therefore, provide a solution for problems occurring at the stage of execution or delivery; at most they can limit the resulting damages afterwards.

In some circumstances, a penalty clause is not effective. This may be the case if, for example, performance of equipment that is purchased is found to be more than 5 per cent under the agreed performance standard. In such a case, the buyer must have the right to refuse the product or equipment in question. Another example is when a supplier does not meet local legal requirements. Then, the buyer must be able to reject the delivery. Also in this case, a penalty clause will not be effective.

It is also important that the period during which the supplier is liable for the reliability and adequate functioning of the delivered goods in the specified circumstances be recorded in the contract. In general, a period of 12 months is included as the warranty period in the terms and conditions of the agreement. The agreement should also state when the warranty comes into effect; this can be the date that the goods are put into service, or it can be the delivery date.

One special aspect in the case of investment goods is the supplier's responsibility to take all necessary measures to maintain the delivered product during its economic or technical lifespan. Maintenance and spare parts must be available during this period. This is why manufacturers of trucks (e.g. DAF, Scania) are required to maintain a spare part supply for their vehicles, sometimes for a period of more than 20 years.

General terms of purchase Standard legal and commercial conditions that will apply to every purchase order issued by the buyer.

Purchase order confirmation A document that is used by the supplier in which they agree to perform according to the buyer's purchase order.

Battle of forms Disputes that may arise over whether supplier or buyer general terms and conditions will apply to a commercial transaction.

OTHER ARRANGEMENTS

In many companies, the issues described will be recorded in the general purchase conditions. Other subjects that can be addressed in these regulations include insurance and safety regulations, transfer of rights and obligations, contracting out to third parties and specific terms of delivery.

In general, buyers should strive for a situation in which they can prescribe the company's **general terms of purchase**. In practice, however, a supplier will frequently accept an order only on their own sales conditions. If the supplier does not explicitly reject the terms of purchase in the **purchase order confirmation**, the terms of purchase are still valid (from a legal point of view). If they are rejected, however, then there is basically no consensus and therefore no purchase agreement. In this type of situation, additional negotiations will be necessary. This tug-of-war about terms of sale and purchase is sometimes referred to as the '**battle of forms**'.

Naturally, attempts have been made in international trade to standardize much-used trade terms. The Incoterms are an example. The main standard terms and conditions are discussed in Memo 2.2.

Memo 2.2

Incoterms 2020

The Incoterms terms and conditions are a series of predefined commercial terms and conditions published by the International Chamber of Commerce (ICC) that are widely used in international commercial transactions. A series of three-letter trade terms relate to common contractual sales and purchase conditions. The Incoterms are intended primarily to clearly allocate the responsibilities, tasks, costs and risks associated with the transportation and delivery of goods within or across nations. Based upon these terms, buyers and

sellers can arrange who will be responsible for: transport to the port; offloading the goods from a truck; loading the goods onto a ship; transport by the ship to port of destination; offloading the goods; and loading the goods onto a truck, delivering them to the point of destination and offloading the goods. The terms and conditions set out who will be responsible for paying for insurance.



The Incoterms are accepted by governments, legal authorities and practitioners worldwide for the interpretation of the most commonly used terms in international trade. They are intended to reduce or remove altogether uncertainties arising from different interpretations of the terms and conditions in different countries. As such, they are regularly incorporated into sales contracts and purchase agreements worldwide.

The ninth version – *Incoterms 2020* – came into effect from 1 January 2020 and relates to seven terms and conditions for any mode of transportation, and four terms and conditions for international trade where transportation is entirely conducted by water.

The general terms and conditions for any mode of transportation are:

- EXW – ex-works (named place of delivery). The seller makes the goods available at its premises. The buyer is responsible for unloading. This term places the maximum obligation on the buyer and minimum obligations on the seller. The ex-works term is often used when making an initial quotation for the sale of goods without any costs included. EXW means that a seller has the goods ready for collection at their premises (works, factory, warehouse, plant) on the date agreed upon. The buyer pays all transportation costs and also bears the risks for bringing the goods to their final destination. The seller does not load the goods onto collecting vehicles and does not clear them for export. If the seller does load the goods, they do so at the buyer's risk and cost. If parties wish the seller to be responsible for the loading of the goods on departure and to bear the risk and all costs of such loading, this must be made clear by adding explicit wording to this effect in the contract of sale.
- FCA – free carrier (named place of delivery). The seller hands over the goods, cleared for export, into the disposal of the first carrier (named by the buyer) at the named place. The buyer pays for carriage to the named point of delivery, and risk passes when the goods are handed over to the first carrier.
- CPT – carriage paid to (named place of destination). The seller pays for carriage. Risk transfers to the buyer upon handing the goods over to the first carrier at the place of import.
- CIP – carriage and insurance paid to (named place of destination). The containerized transport/

multimodal equivalent of CIF (see below). The seller pays for carriage and insurance to the named destination point, but risk passes when the goods are handed over to the first carrier.

- DAP – delivered at place (named place of destination). The seller pays for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer.
- DPU – delivered at place unloaded. The seller pays for carriage to the place of unloading and delivery when the goods, once unloaded, are placed at the disposal of the buyer at the named place of destination. The seller bears all risks involved in bringing the goods to, and unloading them at, the named place of destination.
- DDP – delivered duty paid (named place of destination). The seller is responsible for delivering the goods to the named place in the country of the buyer, and pays all costs in bringing the goods to the destination including import duties and taxes. The buyer is responsible for unloading. This term is often used in place of the non-Incoterms 'free in store (FIS)'. This term places the maximum obligations on the seller and minimum obligations on the buyer.

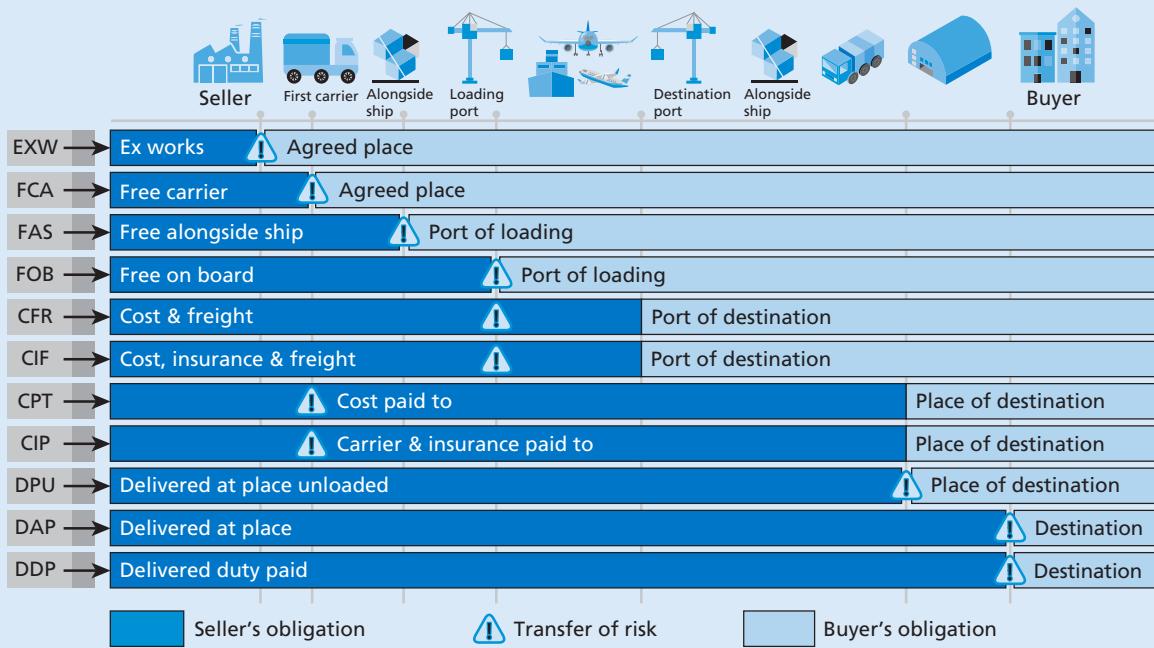
General terms and conditions for sea and inland waterway transport:

- FAS – free alongside ship (named port of shipment). The seller must place the goods alongside the ship at the named port. The seller must clear the goods for export. Suitable only for maritime transport but not for multimodal sea transport in containers. This term is typically used for heavy-lift or bulk cargo.
- FOB – free on board (named port of shipment). The seller must load the goods on board the vessel nominated by the buyer. Cost and risk are shared when the goods are actually on board the vessel. The seller must clear the goods for export. The term is applicable for maritime and inland waterway transport only, but not for multimodal sea transport in containers. The buyer must instruct the seller of the details of the vessel and the port where the goods are to be loaded, and there is no reference to, or provision for, the use of a carrier or forwarder.

- CFR – cost and freight (named port of destination). The seller must pay the costs and freight to bring the goods to the port of destination. However, risk is transferred to the buyer once the goods are loaded onto the vessel. Insurance for the goods is not included. Maritime transport only.
- CIF – cost, insurance and freight (named port of destination). Exactly the same as CFR except that the seller must in addition procure and pay for the insurance. Maritime transport only.

Figure 2.5 provides a schematic overview of the responsibilities of both buyer and seller for each of these terms and conditions. This scheme shows the two extremes: EXW, where the buyer is entirely responsible for arranging and paying for transport and insurance; and DDP, where the seller takes on the full responsibility and liability for delivering the goods to the buyer's doorstep. Parties can agree in their negotiations to end up with a mixed arrangement, based upon the defined terms and conditions.

Figure 2.5 Duties of buyer and seller under Incoterms



Routine buy Relates to the acquisition of a known product from a known supplier (identical to straight rebuy).

Purchase order requisition Description of internal customer requirements for goods and/or services needed to be obtained from suppliers, which will serve as the basis for the purchase order.

Step 4) The ordering process

After the terms and conditions of the contract have been agreed and recorded, the order can be placed. In some cases, the contract is in fact the purchase order. In other cases, for example in the case of a **routine buy**, buyers will negotiate a framework, i.e. a call-off agreement, covering the materials and products needed for a longer period (one year or even longer). Next, purchase orders are placed against this agreement. In these cases, contracting and ordering are separate activities.

A purchase order is usually initiated (electronically) through a **purchase order requisition** or a materials requisition. For production and inventory items this requisition is generated through the materials requirements planning (MRP) systems through the matching of the materials volume needed for production for a given period and the available (pipeline) inventories. When inventories are lower than their minimum acceptable levels,

the MRP system generates a signal to the procurement department by means of a detailed materials or purchase order requisition. Most advanced materials planning software packages enable the transfer of this requisition to a purchase order electronically. In other cases, purchase requisitions must be initiated manually by filling in purchase requisition forms, which, after approval by the budget holder, are forwarded to the procurement department.

When ordering from a supplier, it is very important to be specific about the information and instructions to the supplier. Generally, a purchase order will include the following entities: an order number, a concise description of the product, unit price, number of units required, expected delivery time or date, delivery address and invoicing address. A purchase order may contain several order lines which describe different products that must be delivered. All of these data need to be reflected on the delivery documents and invoice sent by the supplier in order to facilitate (electronic) matching.

Usually the supplier is requested to send in a confirmation for each purchase order received. Together, the purchase order, the supplier's delivery documents and invoices form the input for the buyer's vendor rating system (a more detailed discussion on vendor rating and supplier performance is presented elsewhere).

If all of these preparatory activities have been executed adequately, there will be less work in the ordering and order handling stages. In practice, however, things often work out differently and considerable efforts are required from the buyer to make sure that suppliers live up to their agreements.

Step 5) The expediting process

Expediting demands a lot of the buyer's attention and is often conducted on the basis of an overdue list which records all deliveries that are late. There are three types of expediting. The first is known as 'exception expediting'. Here, the buyer is informed by the internal customer that materials have not arrived in time. Then, the buyer needs to take immediate action depending on whether this late delivery will cause a disruption in the internal customer's operational processes. This method is not recommended since the buyer operates always after-the-fact. A preventative approach is much better. The 'routine status check' reflects such an approach. Here, the buyer will contact the supplier just a few days before delivery with the request to confirm their delivery date again in order to prevent unpleasant surprises. Another method, which is a little more time intensive, is the 'advanced status check'. This method is used for critical purchased parts and critical suppliers. Critical may refer here to supplies that are on the critical path of materials planning, or to materials with tight quality tolerances coming from problematic suppliers. Here, the buyer will check progress at the supplier at regular intervals, using the time-based work schedule that has been sent by the supplier at the time of closing the contract. The contract may be so important that the buyer will send an inspector to the supplier's production site. This is known as 'field expediting'. It is used for costly and high-risk contracts.

When the products or equipment are delivered, they will have to be checked to ensure that they meet the specified requirements. Acceptance of equipment often consists of a number of steps: (1) an **acceptance test** at the supplier's site before shipment; (2) an acceptance test at the user's site after delivery; and (3) an acceptance test when the equipment is put into operation for the first time. Depending on the size and technical complexity, there may be more than one acceptance test at the supplier's site during the production of the equipment.

Acceptance test

This is a technical test performed at either the supplier's site, the buyer's site or both, to check whether the equipment that is bought by the buyer meets their functional and technical requirements.

The business world is far from ideal. Notwithstanding good contracts and purchase orders, many things may go wrong at delivery: delivery times may not be respected by the supplier, quality problems may occur with purchased materials, suppliers may charge more for their products than agreed. Solving these operational issues is often referred to as 'fire fighting' by procurement professionals, who often complain that it consumes a lot of time and distracts attention from tactical and strategic procurement activities. Therefore, it is very important that the company has a reporting system for all the problems which may occur. Quality and delivery problems should be reported daily to the buyer through a supplier complaint reporting procedure. These problems should be immediately communicated to the supplier in order to prevent a recurrence in the future.

Step 6) Follow-up and evaluation

The buyer's role continues even after the products and/or services have been delivered and the invoices have been paid. For example, warranty claims and penalty clauses need to be settled, or excess and minor work needs to be administered and arranged. Next, all procurement and supplier files need to be updated and archived. Finally, supplier and project evaluations need to be finalized and filed.

With regard to excess work, it is important to establish that this must be reported to the buyer in advance and that the buyer must give permission first. Extra work must always be reported to the buyer so that the purchase costs remain clear. This fosters efficient administrative processing of the invoices that are submitted later on by the supplier.

In the case of capital goods, maintenance activities will become necessary after a while. At that time, it becomes clear whether the supplier can substantiate promises about service, maintenance and the supply of spare parts.

Experiences with individual suppliers should be documented carefully. It is recommended that buyers keep track of the supplier's quality and delivery records, competitiveness and innovativeness, since these data can lead to an adjustment of the so-called vendor rating. It is important to have a thorough and up-to-date record of the actual capabilities of each supplier. Reporting this kind of information, both to management and the supplier's management, is one major source of added value contributed by the buyer. It concludes the cycle, because this information can be used in a subsequent procurement process to assemble the bidders' short list for future projects and contracts. In this way, the company learns to work with suppliers with proven capabilities. When companies learn to work this way, this usually results in a significant reduction in the supplier base. Companies, then, will gradually concentrate more business among the suppliers who, based on their excellent supplier performance rating scores, have proven to be their best.

This concludes the discussions on the procurement process model. Its prime value is that it differentiates between key stages of the procurement process. Six steps have been identified that need to be conducted with great care. If one of the steps is not effectively organized, it may cause problems in the next step and eventually may lead to supplier delivery issues and, hence, cause discontinuities in the company's operational processes. Of course, many variations of this model are found in practice. Each of the steps may be defined into more detailed sub-steps in order to better fit the needs of companies.

The theory underlying the procurement process model is systems theory, which has become quite popular in understanding and explaining organizational behaviour. Theory Snapshot 2.1 describes its main features.

Theory snapshot 2.1

Systems theory

Systems theory is aimed at studying systems, which can be natural or human-made.³ In practice, systems theory refers to the way a part of a company or organization, for example the procurement function, interacts with the organization as a whole, or even with the market or industry as a whole. Different parts of a system can be distinguished such as *input factors*, which include resources, people and information; and *processes or throughput factors*, which include procurement processes, service delivery processes and are used to translate a company's inputs into certain *output factors*, e.g. products, services, results and reports. Systems theory assumes that there is no single best way to organize things. It further assumes that the different parts that make up a system are interdependent and interact and influence each other. Also, if systems are not maintained and managed, they will deteriorate over time. To prevent this feedback loops are organized that can be used to redirect the organization towards its goals. Or, if this is

not possible, the organization should change its goals to adapt to new challenges.



The procurement process model discussed in this chapter reflects systems theory to a large extent. Important inputs are information about internal customer needs and available suppliers on the market. Throughput factors are the procurement procedures, tools and templates used to translate the customer requisitions into a contract, i.e. a purchase order with suppliers. The procurement process model assumes that each individual step in the process is dependent on the previous step. Next, it assumes that the process may be iterative in the sense that results from a later step may lead to a review of the previous steps (e.g. a delivery problem may lead to a change in the original specification). Given the variety of products and services that organizations buy, and in line with systems theory, the procurement process differs across different spend categories.

Major bottlenecks and problems

The procurement process model that has been presented in this chapter is a construct, an abstraction from reality. In the real world, organizational procurement processes deviate from this model. Observation of numerous companies and institutions over many years has demonstrated that the procurement process can be obstructed by the following situations:

- Supplier or brand specifications. Specifications are worked out in detail by the user, i.e. a technical specialist, and written for one specific supplier. The use of a particular brand or supplier specification seriously limits the buyer's commercial latitude (in terms of negotiations) with the supplier, who in most cases is well aware of the selection of their product. Only recognizing the technical expertise of a supplier may easily lead to situations where the supplier selected cannot meet the capacity and logistics requirements of the company.
- Inadequate supplier selection. Selecting a supplier is one of the most important decisions in the procurement process, particularly if the products delivered require many years of maintenance and service (as in the case of many investment goods). Failure to check the supplier's (bank) references can produce very unpleasant surprises such as unexpected bankruptcy, inability to meet quality requirements or unwillingness to keep up with warranty obligations.

³See e.g. von Bertalanffy (1968) and Katz and Kahn (1978).

- Personal relationships. Purchase orders are placed with suppliers with whom the user has a friendly relationship; this is one reason why long relationships between organizations may exist. As a result, such suppliers may not be as competitive as the internal customers think they are.
- Lack of good contractual arrangements. Contracts, when available, are stated in general terms, they are not complete and have not passed legal scrutiny, and a clear description of the product or supplier requirements may be missing. Another problem may be that the contract is drafted by the supplier using its own legal terms and conditions.
- Too much emphasis on price. Especially when buying capital equipment, buying decisions need to be based upon TCO rather than price only. Many equipment manufacturers (e.g. computer printers) have adopted a sales strategy where they charge a fairly low price for their equipment. However, their warranties and service contracts require the customer to source spare parts and all maintenance services from the original equipment manufacturer (OEM). In order to handle this type of purchase effectively, buyers need to base their decisions on TCO models in which the initial purchase of the equipment is balanced against the life-cycle costs of the equipment.
- Poor administrative processes. In some cases the supplier may have actually made the delivery, and now the procurement department is requested by the user to produce a purchase order with a purchase order number to be issued to the supplier so that payment can be made. Another administrative problem may be that invoices are paid without proper matching with the original purchase order and delivery document. Putting a sound administrative system in place could lead to significant savings.
- Delivery problems. At the stage of delivery, problems may occur: suppliers deliver too late, deliveries are not complete, products are damaged or do not meet quality requirements, packaging is unsound, and information labels cannot be read by bar code systems. The reason for these problems can usually be traced back to unclear specifications or a careless supplier selection. Another reason may be that suppliers are not systematically evaluated, as a result of which troublesome suppliers stay on board and delivery problems occur time after time.

To prevent these problems, companies need clear rules and guidelines with regard to procurement governance. Professional administrative procedures should be put in place. In dealing with payments of invoices, a basic principle should be that invoices without a purchase order number will not get paid. Another principle could be that above a certain financial value, the organization commits itself to issuing three competitive bids before awarding a contract to a supplier. A third principle could be that the organization decides a formal contract is needed before engaging in a formal relationship with a supplier and making any purchase orders.

This set of rules and guidelines should be communicated to the supplier community with the names of the persons who will have procurement authority. Procurement authority needs to be differentiated from **budget authority**. When these rules and guidelines are in place, companies will not only benefit from fewer delivery problems but will also get much better value for the money that they spend. However, as we will see later in this book, in practice it is far from simple to put these in place.

Budget authority

Allows a manager to spend money and resources of the company for company purposes.

Summary

This chapter describes how organizational buying behaviour differs significantly from consumer buying behaviour. Industrial companies, governmental organizations and institutions buy goods and services to feed, support and maintain their primary and supportive processes, while consumers purchase products to immediately satisfy their needs. The value of the models that have been developed for explaining consumer buying behaviour is therefore limited for studying industrial buying processes.

Several theoretical models in the field of industrial buying behaviour were discussed in this chapter. A distinction can be made between the models that view the procurement process exclusively from an organizational perspective, and the models that regard the buying process as an interaction between two or more parties. Both types of models have their value: they explain why it is often so difficult for an outsider to understand organizational buying processes and why they are often so hard to organize.

Although procurement processes may vary to a great extent, each procurement process evolves according to similar stages. In this chapter, we presented and explained the linear procurement process model. This model shows that effective procurement decision-making requires a step-wise cross-functional approach. The key issue is to direct and guide the efforts of the various organizational parties involved in such a way that an optimal result is achieved for the organization. The professional buyer can make a major contribution here. Not all phases of the procurement process are passed through in all cases. Three types of buying situations can be distinguished: the new-task situation, the modified rebuy and the straight rebuy. The composition of the DMU will be different for each of these situations.

In this chapter, the role of the procurement department was discussed. In general, the procurement department's involvement is highest when it concerns the purchase of items with limited product complexity and commercial uncertainty. Its role is more limited when it concerns investment or capital goods. It has furthermore been demonstrated that procurement's involvement is highest during the operational stages of the procurement process; procurement's involvement is still relatively low in the early stages of product development (when specifications are determined and materials selected). Theory runs ahead of practice here.

The procurement process model offers organizations a tool for structuring their procurement processes. Ideally, each stage of the procurement process should result in some kind of a decision document: purchase order specification, supplier selection proposal, procurement contract, purchase order, delivery document, invoice and vendor rating. Using these documents allows for effective tracing and tracking of all aspects of the procurement process. However, using this type of tracing and tracking requires the effort of many stakeholders in the organization and may lead to longer lead-times. Therefore, an efficient administrative organization and order-to-pay system should be in place.

Assignments

- 2.1** To what extent is the procurement process model complete in your opinion? What would you like to add or change?
- 2.2** What is meant by ‘procurement governance’ and what is required for a company to put a proper ‘procurement governance’ in place?
- 2.3** How might a procurement manager of a manufacturer of consumer electronics, based upon the procurement process model, arrive at zero defects deliveries from the supplier to the factory?
- 2.4** As a buyer for a do-it-yourself chain you import hand-tooling equipment from China. You desperately want to have these tools before the spring in your supermarkets. What Incoterms would you choose for your procurement contract with the Chinese supplier and why?

Additional reading

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3 Procurement as a business function

Learning objectives

After studying this chapter you should understand the following:

- The major tasks and responsibilities of procurement.
- The basic principles underlying procurement management.
- The key elements of the procurement management process.
- The major processes and enablers of the procurement function.
- How procurement may develop over time as a business function.

Introduction

Procurement managers need to support the company's business managers in realizing their business objectives and goals. Due to the increased outsourcing of business activities over the past decades, procurement has developed into a business domain of strategic relevance (Mol, 2002). As suppliers gradually became more important for the competitive positioning of the firm, so it also became more important to align procurement objectives with the business objectives (i.e. strategic alignment). However, the dominant focus of the procurement function is still on procurement's 'bottom line' impact through cost savings, securing delivery on time and quality improvement (Hartmann, Kerkfeld & Henke, 2012). How firms can best mobilize their supplier networks to create a sustainable competitive advantage is still an issue to be fully resolved.

Before we can take a strategic perspective on procurement it is important to first understand what it takes to gain credibility as a business function. The introductory case study at the beginning of this chapter shows that when a procurement organization is unable to secure delivery on time, its credibility will suffer. The case study also shows that careful materials planning by maintenance staff and project managers, who respect supplier lead-times, is mandatory to achieve operational excellence. Operational excellence is one of the key tasks of any procurement organization. It should make every effort to ensure that the best products are delivered at the right time, at the best possible quality, at the best price to satisfy the needs of internal customers.

Procurement management

Relates to all activities necessary to manage the procurement function in such a way that all procurement activities are aligned with and contribute to the company's overall business strategies and interests.

When discussing how to develop procurement as a strategic business function, we observe major differences between organizations and industries. Tasks, responsibilities and the degree of authority assigned to the procurement department differ, even between companies which are operating in the same industry. The objective of this chapter is to answer the question of what it takes to develop procurement to become a key contributor to business success. This chapter describes the basic principles underlying procurement management and the key elements of the **procurement management** process. The chapter ends with a discussion on how procurement may develop into a strategic business function over time.

Case study

Shell Houston

Peter Downing felt honoured when he, after a long career in procurement, was appointed Vice President Contracting and Procurement for Shell's Downstream Operations. In this position, he assumed final responsibility for the procurement of all goods, services and capital goods for Shell's refineries, gas stations and distribution operations around the world, totalling some US\$36 billion. Peter owed his appointment to his excellent achievements in previous procurement functions.

The first day he entered his new office, Peter received a call from the plant manager of the Shell refinery in Houston, whom he knew personally from one of his previous roles. The Texan plant manager desperately needed support. 'Peter, our procurement department in Houston is a drama. I want as quickly as possible to have an appointment with you to see how we can change that', he reported briefly during the telecon. Within two weeks Peter went off to Houston, where he was briefed in more detail by the plant manager.

Large maintenance projects were executed at the refinery. However, the lack of maintenance components and spare parts was causing large delays in project planning. As a result, production at a large part of the refinery would have to be started much later than planned. The financial damage due to this project delay already amounted to millions of dollars. 'And the reason for this situation is your dysfunctional procurement organization. I want you to improve the situation as soon as possible!' the plant manager snapped to the new VP of C&P Downstream. Peter gave him his word that he would return in two days with a proposal. Later that week he presented his findings to the management of the refinery, all experienced engineers and technicians, mostly from Texas. Texans are usually pretty direct in their wordings and communication. Peter acknowledged that the delivery performance of suppliers and therefore the performance of Houston's procurement department were the worst he had seen in his career. Then the group nodded in agreement: everyone was only too well aware of this. 'The reason for this poor supplier performance', Peter continued to explain, 'is due to the extremely sloppy material planning. More than half of the maintenance parts should have been available for the project at the time they were requested from the procurement department by the maintenance managers. This means that any procurement department in such a case would be unable to supply goods and services on time'. Peter continued, 'Any procurement department can perform as good or as bad as the way in which it is managed by its environment'.

Peter showed the lack of materials planning using detailed graphs and examples. 'The current situation implies that my organization, and our suppliers, in more than half of the cases are put at a backlog and will be unable to supply on time'. Peter told them that he had never seen such bad maintenance planning, and then concluded that his organization and at least the organization of the refinery in Houston had a shared problem and would have to work together to find a solution. And according to Peter, he and his colleagues would certainly take part in finding the best possible solution at short notice for this complex issue.

Primary tasks and responsibilities

The following tasks and responsibilities are considered to be core to the procurement function in any organization:

- Operational excellence. This is about securing timely and undisturbed availability of purchased goods and services, both in the short and long term, to keep the factory running. This relates to procurement's *supply management task*. The materials and services which are to be purchased must be available in line with the requirements of procurement's internal customers. Procurement's primary task is, therefore, that of securing supply from reliable suppliers of a consistent quality at reasonable (total) cost. Effective and efficient supply is mandatory. If this task is not executed effectively, the buyer and the procurement department will lose their credibility, which will prevent procurement from developing into a strategic business function. It also increases the likelihood of internal customers, such as marketing, engineering, manufacturing and technical maintenance, bypassing the procurement department and making purchases on their own. Effective procurement therefore requires an explicit customer orientation, but above all getting the operational basics right.
- Cost control and reduction of all procurement-related spend. This relates to procurement's *spend management task*. Having secured supply, procurement needs to make sure that goods and services are supplied at the lowest total cost of ownership (TCO) or best value. TCO consists of two major elements: direct materials cost and all (indirect) costs related to the logistics and handling of these materials (costs related to transport, incoming inspection, materials handling, inventory, administration and scrap, etc.). Buyers should attempt to reduce indirect costs by reducing the 'buffers' or 'waste' that may be built into the company's **supply chain** (e.g. safety stocks, incoming inspection, quality inspection and field expediting). Best value relates to the most economically advantageous supplies the company can acquire against the money spent. Of course, a major task is to make sure that materials and services are bought at fair and **competitive prices** from the best suppliers that can be found. Whatever procurement decision is made, however, it requires a sound balancing of cost versus risk and value aspects. In view of the fact that on average 60 per cent of the production value of industrial companies consists of purchased products and services, it is obvious that procurement's contribution on this aspect is a major one.
- Supply risk management. This relates to procurement's *risk management task*, i.e. reducing the company's risk exposure in relation to its supply markets and supply chains. If possible, the company should avoid becoming too dependent on just one or a few suppliers, both in terms of supply and technology. 'Captive' sales situations must be prevented or reduced and it is important to have access to reliable suppliers because high quality and punctual delivery are often more important than price. In order to minimize its technological and supply risks in the long term, the company's management preferably should aim to spread its procurement requirements among different suppliers. Memo 3.1 illustrates what might happen if a company reduces its supply base too much. Today, procurement managers should make sure that the company's supply chains operate according to agreed rules and guidelines in the area of human rights and local labour and environmental laws in order to mitigate the business impact (e.g. brand damage) of potential supply chain risks related to sustainability (e.g. the horsemeat scandal of European supermarkets, the poor working conditions at Apple's supplier Foxconn).

Supply chain A series of companies in which the consecutive stages of production of an economic product take place, from primary producer to final consumer.

Competitive price The price paid for a product based upon competitive tendering among a number of preselected suppliers. E-auctions or other formal tendering vehicles may be used.

- Innovation and continuous improvement. This relates to product and process innovation, i.e. procurement's *development task*. Suppliers are often a source of new products and production technologies. In many industries, technological developments take place at such a rate that even large enterprises, such as Philips, Unilever and ASML, are unable to generate all the investments needed to keep up with technology development in every area. In some cases, this leads to partnerships with suppliers in the research and development (R&D) field. Unilever, for example, launched their 'Partner to Purpose' initiative in 2020 to develop purpose-led partnerships with their key suppliers and work on market leading innovations, protect and regenerate nature, and make sustainable living commonplace. The Senseo coffee concept, which was originally developed by Sara Lee DE in co-operation with Philips, is another example; a third example is the development of high-precision wafer steppers (for the manufacture of microchips) by ASML in the Netherlands with Carl Zeiss, manufacturer of high-tech lenses, from Germany.

Memo 3.1

Fighting over chips

The COVID-19 pandemic that spread across the world at the beginning of 2020 was not only a big threat to public health but also to the car industry. Initially, the pandemic caused up to 50 per cent fewer cars to be sold. After all, people had less reason to travel by car and confidence in the economy was low. Car manufacturers responded by limiting production and ordering fewer parts and fewer computer chips.¹ NXP, the former chip division of Philips and a major supplier of chips to the automotive industry, was hit hard by falling demand. At the same time, as the pandemic continued, there was a huge demand for devices such as laptops, smartphones and cloud services due to increased working from home. People also turned to video gaming to keep themselves entertained through the periods of lockdown and self-isolation. As a result, global demand for semiconductors and IC's used in consumer electronics and game computers (e.g. Sony PlayStation, Xbox One, Nintendo Switch) increased significantly. IC manufacturers therefore focused more on producing and selling smartphone and tablet microchips. Also because the ICs used in cars were based on mature technology and yielded less profit, this resulted in the short supply of microchips for the automotive industry. By Q2 2021 car sales were on the rise again. Car manufacturers did everything they could to replenish their stocks and were fighting for priority over their suppliers' production capacity. To keep costs low, car manufacturers work

with just-in-time deliveries and small stocks. This supply chain strategy works as long as there is sufficient capacity in the market, not when there are shortages. Dutch car manufacturer VDL Nedcar had to stop production for a few days, sending 3000 employees home. As a result, they could only produce a small number of Minis and BMW X1s. Volkswagen also temporarily had to shut down factories and production lines due to the lack of semiconductors. This also occurred at Ford, Toyota, Daimler, Mitsubishi, Jaguar Land Rover and General Motors (GM). The global car industry lost an estimated US\$110 billion in revenue in 2021 due to chip shortages according to market analysts. Chip manufacturers attempted to dramatically increase their capacity. Intel, a major US chip manufacturer, announced that it would invest US\$20 billion in new production capacity. TSMC (Taiwan) also announced it would build new foundries. Apple announced it would set up its own foundries using Intel as a partner. Of course, it will take time before the effect of these actions is visible. Expanding capacity is not easily arranged. Specialist machine manufacturers for IC manufacturing, such as the Dutch ASML, are fully booked for over a year. New customers need to stand in line and wait their turn. So, it will take at least a year or longer before those new factories and facilities are up and running.



¹Also: semiconductors, integrated circuits (ICs)

A company's image and brand equity are partly determined by what it communicates to its customer markets and the financial community. A company's reputation may be severely damaged by irregularities in its supply chain. H&M, the Scandinavian fashion retailer, learned this painfully in 2013 when the Dhaka garment factory, one of its key apparel suppliers, collapsed, killing over 1000 employees. This disaster revealed the bad construction of the factory as well as its inhuman working conditions.

Procurement managers must make sure that the company actually does business with suppliers who abide by their local laws, take care of their employees and secure fair working conditions. It is therefore important that procurement operates according to a minimum set of procurement procedures which describe how suppliers are selected and contracts are awarded. Next, it should be clear who is authorized to make procurement decisions, how the procurement process is structured, and when and how payments to suppliers will be made. The ways of working should be described preferably in procurement procedures which are simple to use and easy to communicate. An example of such procedures is the simple rule that no invoice will be paid to suppliers unless it has a purchase order (PO) number. Or, another example could be that all purchases beyond a certain amount of money (for instance, €5000) need to be covered by at least three quotations from suppliers.

Of increasing importance are codes of conduct on how to deal ethically within supplier relationships on what is allowed when accepting gifts and other fringe benefits from suppliers. As collaboration with suppliers becomes more intensive, the need for this kind of formal procedure grows. The importance of clear and professional communication of the company's procurement policies is increasingly being recognized by larger companies (refer to Memo 3.2).

Memo 3.2

The changing procurement agenda: managing cost, risk and value

The traditional agenda of the procurement manager has changed dramatically in recent times. For many years procurement managers had only one important priority: realizing (cost) savings. Buyers have been very creative in this area, consolidating volumes globally to mobilize buying power, applying advanced negotiation tactics, using electronic auctions to create maximum competition in supply markets and playing suppliers off against each other. In many companies, the number of suppliers has been drastically reduced as the result of supply base reduction programmes. The objective was to go for the lowest possible price at much lower transaction costs. However, as a consequence of these actions, dependency on the remaining suppliers increased. Also, many local suppliers were replaced with suppliers from low-cost countries. This global sourcing contributed to an increasing complexity of international

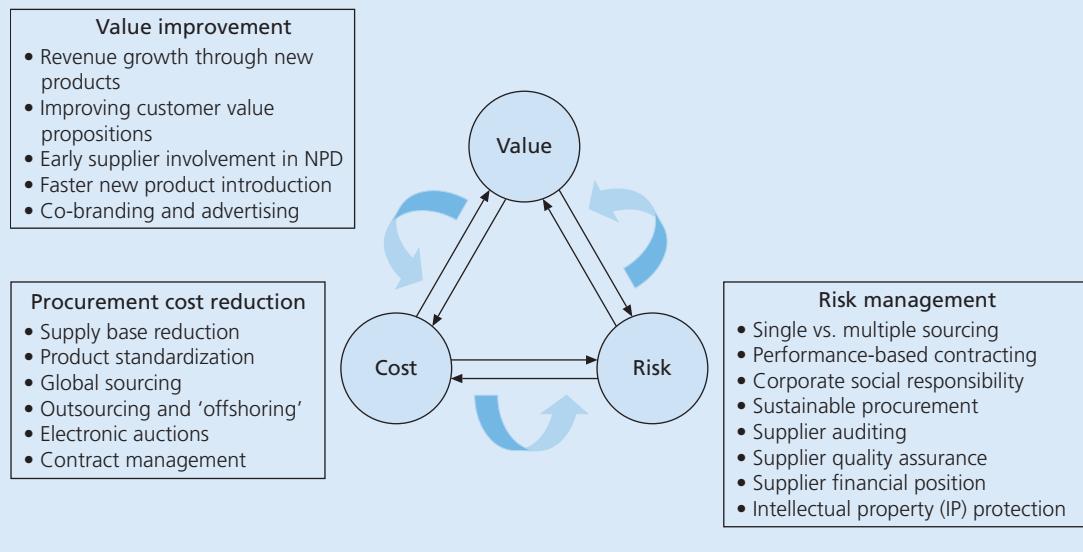
supply chains, increasing the chances of disruptions in the supply of materials. Global sourcing also gave rise to discussions with regard to sustainability, and ethical questions were raised about child labour and exploiting people in low-cost countries. Some large Western companies, among them Mattel, manufacturer of Barbie dolls and other toys, suffered in the past with bad news in the financial press about using suppliers who violated product safety regulations by using lead-contaminated paint in the manufacturing process. Apple was negatively portrayed in the press for its sourcing practices due to bad working conditions at Foxconn, its Chinese contract manufacturer of the iPhone and iPad. Obviously, globally sourcing for the lowest possible cost gives rise to important supply risks, which should be made visible and transparent.



As a consequence, risk management has become an increasingly important topic for procurement managers. This is not all. Suppliers in many industries represent an important source of innovation. Therefore, it has become important to involve suppliers in the company's new product development processes. Suppliers today are requested to contribute to a large part of the new product development budget. As a vehicle, so-called 'gain and risk sharing agreements' are used. In these agreements, the supplier's future income is partially determined by the success of the customer's new products in its end markets. In this kind of collaboration the traditional, arm's length buyer-supplier relationship gradually evolves into a longer-term strategic partnership, i.e. a strategic

alliance. In this new type of supply chain collaboration discussions focus much more on growth and revenue generation than on pressing the supplier for the lowest possible cost per unit. Figure 3.1 summarizes this idea. It indicates that many topics have been added to the traditional procurement agenda. Increasingly, procurement managers need to balance cost and risk factors against value aspects. Pushing costs too much often means that both risk and value will be influenced in a negative way. Pushing value might result in higher costs and lower risks. There is no one best answer or general rule on how to balance cost, value and risks. So, procurement managers have to make the trade-off clear to the management, present different sourcing scenarios and drive intelligent decision-making.

Figure 3.1 Managing the procurement agenda: balancing cost-risk-value



Most of them have developed professional communication strategies (including events, social media, brochures, websites) to explain their policies both internally and externally. It is part of the procurement manager's responsibility to communicate how the company wants to interact with the supply markets and in the relationship with its suppliers.

A clear procurement process model, as presented previously, may help procurement managers to organize these important procurement tasks and responsibilities. Preferably, the procurement process needs to be structured as a number of successive steps. This is necessary to create uniformity in the way procurement managers operate, internally as well as externally. The procurement procedures and policies need to cover all stages of the procurement process model. It should be based on a clear sequencing of the different procurement activities, so that a description can be made of the roles and responsibilities between all disciplines involved in a particular purchase.

It is the procurement manager's task to explain how procurement processes are structured in the organization and to show how the company deals with important

procurement decisions and what role the company's procurement professionals fulfil in this process. Procurement procedures are worked out in detail by means of a procurement manual. This manual provides the rules and guidelines on how to operate procurement decision-making processes and how to deal with supplier relationships in detail. Hence, such a manual is the basis for the periodic internal audit. The procurement manual is an essential part of the company's governance and control structure. Figure 3.2 provides an example of a simple procurement procedure.

Figure 3.2 Procurement procedure (example)

Source: Adapted from Claire Cortez, Procurement Manager, Brasseries Heineken, 1998.

- Choose the best companies (according to their reputation, references, quality of service, competitiveness, motivation and dynamism).
- I. Send an offer of collaboration to the preselected suppliers on the same day, enclosing the specifications and projecting the final reply date, in a strictly confidential letter.
 - II. Reject the offers delivered after the deadline.
 - III. Proceed with an opening session of the letters, in the presence of:
 - Finance management
 - Procurement management
 - Business management concerned with the purchase.
 - IV. Jointly countersign the offers, send a copy of these to those concerned.
 - V. Draw up a comparative table of costs.
 - VI. Proceed with a consistency check of offers on a technical level.
 - VII. Preselect the two best proposals, according to quality and costs.
 - VIII. Check the references.
 - IX. Draw up an assessment grid of recent realizations.
 - X. Compare costs and renegotiate item by item.
 - XI. Recommend a final choice (favouring quality, price, security).
 - XII. Maintain contact with the second best supplier, to avoid any monopolies.
 - XIII. Draft the contract with our legal department (payment methods, penalties for lateness, etc.).
 - XIV. Write to the companies not chosen to notify them of our refusal.
 - XV. Regularly sound out the competition.
 - XVI. Preserve our partners' long-term motivations.

It is important to decide on who in the organization has **procurement authority**. Here, a distinction needs to be made between budget authority and procurement authority. Only when a manager has procurement authority are they entitled to engage in a contractual relationship between the organization and a third party. As a consequence, a contract needs to be signed by at least two parties in the company, i.e. the budget holder and the procurement professional. It is important to apply separate roles here. The budget holder signs off for the allocation of the budget. The procurement manager's signature indicates that the purchase was made in accordance with the company's overall procurement rules and guidelines. Next, a clear division of roles should be made when it comes to payment of the invoices. There should be a separation of roles between the person who actually orders a certain product, the person who checks up on inspection at delivery, and the person who decides about the actual payment.² The reason for this is to prevent fraud. Therefore, these activities are never to be accomplished by the same person.

Procurement authority Allows a manager to legally bind their company to an external partner.

²This procedure is referred to as three-way matching.

The relevance of this simple structure becomes clear if one keeps an eye on the news. Regularly, the international press reports on irregularities that have occurred in the way organizations spend their money. Some years ago, at a major university in one of the European countries, an administrative clerk from the finance and administration department was sentenced for fraud. For about five years this person had sent the university invoices from a small services company that he had set up. Invoices were small and in the range of a couple of thousands of euros per month. Over this period the person was able to cash over €250,000, for services that he never provided. All invoices were signed off by himself, as he made sure that no invoice would exceed his mandate. The auditors found no formal agreement when they stumbled on this case. Neither did they find any procedures that would stipulate how the university would go about checking on and paying invoices. Obviously, some basic rules about how to allocate responsibilities and authorities with regard to the operational procurement process were violated within this university.

As mentioned earlier, it is important that invoices that are sent to the company by suppliers reflect the company's purchase order (PO) number. Invoices that do not have a PO number will not get paid. In this way, the company can keep control of its massive procurement spend.

Of course, it is not necessary that all procurement processes be structured in the same way. Whether a procurement decision needs to be aligned exactly according to the company's agreed procurement policies and procedures will be decided by the strategic importance that it represents to the company. Small transactions and orders need to be managed and dealt with quickly and efficiently and without any bureaucracy. For small orders, it will not be practical to ask for different proposals from suppliers. The savings will probably not outweigh the costs. This is different for large projects and strategic procurement decisions. Therefore, every company needs to decide at what financial threshold the procurement process needs to be applied. In all cases, our procurement process model (the linear procurement process model) needs to be translated into pragmatic and sound procurement policies and procedures.

It is important to have clear rules and guidelines to manage the internal process of procurement. However, rules and guidelines are also necessary to orchestrate the many and often complex relationships with suppliers. Such rules and guidelines are needed because the financial interests in the relationship with suppliers can be very large. The procurement policy and the way in which it is executed clearly affects the reputation of the company to its external world. Through a businesslike but fair attitude, the organization is able to position itself as an attractive customer and reliable business partner to suppliers. Rules and guidelines are needed, related to the acceptance of business gifts, invitations for study trips, seminars, conferences, dinners, etc. Procurement professionals need to ensure that contractual arrangements made with suppliers are never violated by unethical behaviour by company managers, or that these managers end up in situations in which the company is compromised. Therefore, such rules and guidelines need to be communicated effectively to the supplier community.

Procurement managers need to support the company's business managers in realizing their business objectives and goals. They should therefore spend a substantial part of their time in contact with internal users, such as marketing, operations, product development and engineering. When this interaction and alignment is structured in a formal way, it is referred to as 'business partnering'. Bureaucracy ('this order must

be placed according to our procurement procedures') and too strong an emphasis on price aspects ('let's see what discount we can get'), which many procurement managers are accused of in practice, are incompatible with a true business orientation. Experience shows that internal users will only consider costs when they are convinced the procurement manager will ensure timely delivery (risk factor) or availability at the quality they want (value factor). Those aspects should be of primary concern to them (refer to Memo 3.3).

Memo 3.3

Value versus price

It is unwise to pay too much, as it is unwise to pay too little. When you pay too much, you lose a little money, that's all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the things you bought it to do. The common law of business balance prohibits paying a little and getting a lot. If you deal

with the lowest bidder, it is well to add something for the risk you run. And if you do that, you will have enough to pay for something better.

Source: Anonymous



The four procurement tasks (i.e. supply management, spend management (getting maximum value per Euro spend), supply risk management and driving innovation) cannot necessarily be applied collectively, and in certain situations they can even be contradictory and conflicting. **Single sourcing** is often pursued with the intention of reducing materials costs – by placing all procurement requirements with one supplier it is often possible to negotiate substantially better conditions. However, this policy certainly has its price in that it will lead to increased supply risk or dependency on one supplier. Balancing the pros and cons of this particular problem exceeds the authority of a procurement manager. This is one reason why strategic supplier decisions need to be made by (top) management.

The idea that procurement managers can indeed make significant contributions to product and process innovation implies high demands on their technical competences and interpersonal skills. Collaboration with engineering and R&D, on the one hand, and the procurement department, on the other, is in practice often troublesome (Luzzini & Ronchi, 2011). Engineers and developers often do not believe that procurement managers can make a significant contribution to their work because procurement managers often lack the required technical background and have insufficient affinity with product development and design, and specific engineering problems. In those cases these procurement managers should be upgraded to bring their technical expertise in line with the level of professionalism that is present in the surrounding business areas. Another approach is, as we will see later in this book, to put the responsibility to deploy procurement policies and procedures to the technical specialists and line managers. This is one way to overcome the often (seemingly) conflicting interests between procurement professionals and their internal customers.

Single sourcing A situation where a buyer is forced to buy from one supplier due to technical specifications.

Theory snapshot 3.1

IS PURCHASING STRATEGIC ... OR NOT?

In 2001 John Ramsay shook up the academic community with his well-grounded article discussing purchasing's strategic irrelevance (Ramsay, 2001a). Taking the resource-based view theory as a point of departure, he argued that business success comes from controlling resources that contribute to achieving 'above normal returns' and/or 'sustainable competitive advantages'. He noted that in line with contemporary thinking on strategic management theory, above normal returns and competitive advantages particularly come from core activities. Non-core activities increasingly are subcontracted to specialist suppliers. At the same time, he noted that procurement was rarely involved in make-or-buy decision-making. Rather, procurement managers were confronted with the results of such decision-making. As a result, procurement managers predominantly managed the outsourced non-core activities, which by definition were to be considered as non-strategic. Moreover, Ramsay argued that since these non-core activities supplied by suppliers were often freely available on the market, procurement could not be an activity that would generate above normal returns. Hence, his conclusion was that procurement was strategically irrelevant.

Before the international academic community could react, a second article by Ramsay was published in the *Journal of Supply Chain Management*

(Ramsay, 2001b). Here, Ramsay presents a different view. Since all procurement functions are not the same it is possible to argue that all companies (of whatever size) may develop superior performance to their competitors. In so far as a company has superior competence in its procurement function, it will be able to achieve a 'competitive advantage' that provides for a strategically important role. Interestingly, Ramsay described the potential sources from which a competitive advantage could be derived in the purchasing domain as: (1) superior skills, capabilities and experience of individuals involved in procurement; (2) historically superior codified knowledge of supply markets and supply chains; (3) superior buying power resources over suppliers; (4) lack of transparency in how superior procurement competence is achieved; and (5) high cost of replication of superior procurement competence. Since perfect repetition of what others do is difficult, Ramsay considered major opportunities to be present for a strategic role of procurement. A key issue in uncovering the strategic potential of procurement is that companies need to understand the power position they are in with their key suppliers and how to leverage their scale to generate cost, value and risk improvements in these relationships.



Managing procurement: a few principles

It is important that procurement activities remain aligned to the company's mission, objectives and strategic plan. In the long-run procurement departments can only achieve top performance if they have a clear strategy in place that is implemented successfully throughout the company. For this, procurement management is necessary. This section describes the major principles of procurement management. Preferably, procurement management should be based on a sound business orientation, reflect a cross-functional approach and be directed at improving the company's bottom and top-line performance.

BUSINESS ALIGNMENT

Developing a procurement strategy requires a thorough understanding of the company's overall business policy. What end-user markets is the company targeting and what are the major developments going on in those markets? What competition is the company suffering from and what freedom does the company have in setting its own prices? To what extent can materials price increases be passed on to the final customer or is this

impossible? What changes are happening in the company's product, operations and information technologies? What investments are made by the company in terms of new products and technology, and what products will be taken out of the market for the years to come? Understanding these kinds of questions is important since it will determine how procurement strategies will need to support the company in meeting its goals and objectives.

Center Parcs is a well-known company operating resort parks in many European countries. In the past this company decided to centralize most of its procurement activities, which until then resided predominantly at the individual parks with resort managers. A spend analysis showed that the majority of expenditure was with just a few key suppliers. It also appeared from the analysis that Center Parcs was a major customer to each of these key suppliers. Prior to starting contract negotiations with each of these suppliers (among them important beer and beverage companies, a major construction firm and the retailer that operated the supermarkets at the resorts), the business team that was assigned the task to set up the centralized procurement department decided to bring all key suppliers together in a meeting. In that meeting the business team pointed out that, in fact, both Center Parcs and these key suppliers had one common interest: to make sure that all cottages and bungalows were fully booked. Next, all suppliers were invited to come up with ideas on what they would do to improve the number of client reservations in the Center Parcs resorts. They were invited to present their business case formally in the next meeting with the business team. When the initial confusion about this invitation disappeared, most of the suppliers proved to be very creative. Through specific advertising campaigns allowing consumers to enjoy rebates at a Center Parcs stay, promoting Center Parcs to their employees and giving them special offers, and holding parts of their training programmes and executive meetings at the resorts, these suppliers were able to generate thousands of additional bookings. This generated much better occupancy rates and, hence, much better business for Center Parcs and its suppliers.

INTEGRATED, CROSS-FUNCTIONAL APPROACH

Procurement decisions cannot be made in isolation and should not be aimed only at optimization of **procurement performance**. Procurement decisions should be made taking into account the effects of these decisions on the other business activities (such as operations, marketing and sales, logistics, product development). Therefore, procurement decisions need to be based on optimizing TCO or creating the maximum value for the company's procurement spend, rather than only going for the lowest price. When buying a new packaging line, for instance, it is important to consider not only the initial investment for the equipment but also the costs which will be incurred in the future for buying packaging materials, spare parts and technical services. Moreover, unplanned downtime of the equipment against a predetermined level needs to be agreed by the supplier during the packaging lines' technical and economic lifespan. The selling of equipment by a supplier is one thing; servicing that same equipment satisfactorily over a large number of years by that same supplier is often something different. This example illustrates the complexity of this type of purchase and the different kinds of decisions that need to be made. Careful decision-making in those circumstances will require an integrated, cross-functional and team-based approach among all the affected business disciplines. Procurement strategies can only be developed effectively in close co-operation with all disciplines and (top) managers involved. Procurement managers should adopt a leading role in orchestrating all players.

Procurement

performance The extent to which the procurement function is able to realize its predetermined goals at the sacrifice of a minimum of the company's resources, i.e. costs.

The acquisition of a small computer printer serves as an example of why buying at the lowest total cost may be better than going for the lowest price. These printers are offered in many European countries at very affordable prices. Why manufacturers are doing this becomes clear when the consumer needs to buy toner cartridges for the first time. It then becomes apparent that just one cartridge will account for about 25–30 per cent of the printer's purchase price. Obviously, the consumer will need to buy many of these cartridges over the lifetime of the printer. In this case the buyer would do much better to consider the price per page printed during the lifetime of the printer rather than just looking at the printer's initial purchase price. Examples illustrating this phenomenon are abundant. They include cars, for which buyers would be better off looking at leasing rates rather than prices offered by dealers, and packaging machines, for which it might be advisable to investigate the total cost price per unit handled rather than only the equipment's initial acquisition costs (i.e. price).

PERFORMANCE-DRIVEN

We do not share the view that procurement should only operate as a service function which should work on behalf of and comply with its internal customers' requirements without asking too many questions. We would rather see procurement acting as a business partner and engaging in a healthy debate with its internal customers to challenge the status quo (i.e. business partnering). Rather than just accepting buying a branded product, the procurement manager should find out about the functionality that is sought by the internal customer. What is it precisely that the customer needs the product for? What is it specifically that they are after? Getting a basic idea about the customer's real needs enables the procurement manager to generate alternatives in close collaboration with the internal customer. Then, in many cases, product and supplier solutions will develop that probably much better suit the needs of the internal customer, even at a lower cost.

Through their activities procurement managers should make the company more cost, value and risk aware. They should consistently look at improving the price/value ratio of the goods and services bought by the company. They should relentlessly seek to improve supplier value/performance and manage supply risks. To accomplish this, procurement should be able to suggest alternatives to existing product designs, materials or components to be used and challenge current suppliers. They should be constantly on the lookout for new promising suppliers and start-ups (i.e. supplier scouting). Experience with companies in which procurement is recognized as a business-driven activity shows that this function contributes to a permanent reduction of materials and supply chain costs, while simultaneously stimulating supplier enabled innovation and supply chain collaboration.

An example that may serve here is a European fruit juice supplier and its over-ambitious marketing department. Once, an energetic marketing manager had stipulated that the company should be consistent in communicating its brands Europe-wide. In all cases the quality and the superior taste of the company's products should be emphasized in all of its advertisements, brochures and packaging materials (juice containers as well as outer boxes). For a number of years this company used colourful boxes (six-colours) for shipping its products to retailers and food services companies. Compared to the normal grey carton boxes, these full-colour outer boxes did cost a fortune. When asked how many people, i.e. customers, would have contact with these boxes (close to none) and when the cost per contact was calculated, the idea of using these colourful boxes

was quickly rejected. Today, the company just works with plain grey boxes, leaving them with a saving on packaging materials of over 50 per cent. The earlier example of Center Parcs showed how closer collaboration with suppliers generated thousands of additional bookings, much better occupancy rates and, hence, much better business for Center Parcs and its suppliers. These examples show how a performance-driven orientation in procurement decision-making can contribute to the company's bottom and top lines, i.e. sales turnover, and a better result for all parties involved.

Procurement management process

It has been argued that procurement strategies should be based on the company's overall (financial) objectives and product/market strategies. A company that operates in a highly competitive end-user market (e.g. the car industry) will undoubtedly have a strong focus on cost reduction and innovation. Hence, its procurement strategies should reflect those aspects, and the procurement activities will be directed through detailed materials budgets and well-prepared cost reduction projects. Constantly looking for new and more competitive sources of supply on an international basis (global sourcing) will be part of these projects. Volkswagen AG serves as a well-known example. Since 1993, Volkswagen has pursued an aggressive procurement strategy for its components. Having sourced traditionally only from German suppliers for its factories in Wolfsburg, its flamboyant procurement director Ignacio Lopez at that time changed its procurement strategy into one based upon global sourcing. Volkswagen's international procurement offices (IPOs) would invite quotations from suppliers worldwide, which were then compared by an executive board that convened weekly at Wolfsburg. As a result, important savings (up to 20 per cent of initial materials costs) were reported during the early years (1994–1995). After these years, however, severe delivery and quality problems occurred: most suppliers were not capable (or willing) to keep up with Volkswagen's growing materials volumes. In order to meet Volkswagen's strict cost reduction targets, suppliers started to compromise on quality. This led to many disruptions in production. Too strong a focus on cost gradually drove out quality. Today, Volkswagen's procurement strategies are much more balanced.

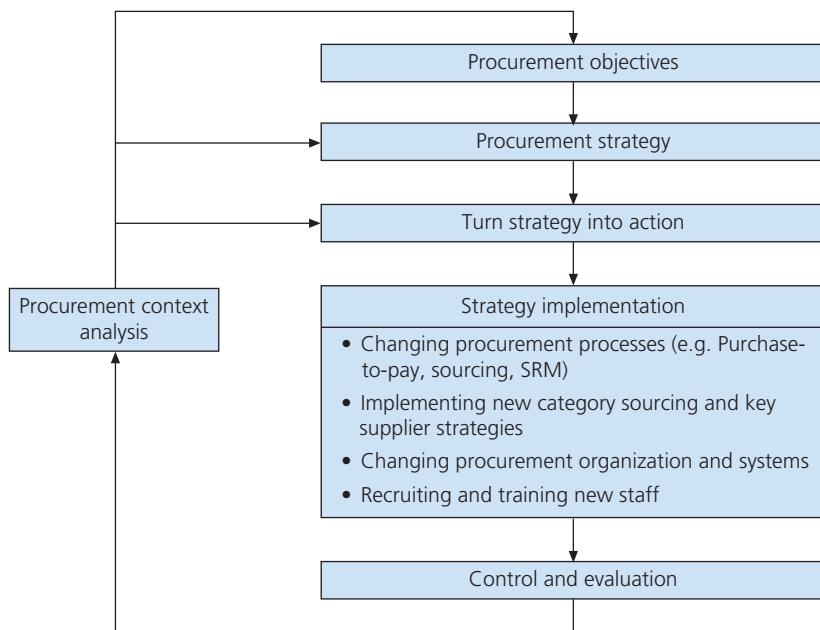
A high-tech company operating in a niche market where it sells unique products, however, will have other concerns in the area of procurement strategy. Early supplier involvement (ESI) securing proprietary knowledge, reducing time to market, development lead-time and development cost, will be of prime interest to top management. Of course, apart from that the procurement function needs to secure flawless delivery of components and materials. Innovation and supply come first; next price and cost aspects are considered. Philips Healthcare, a manufacturer of advanced medical diagnostics equipment, may serve as an example here. This company has gone to great lengths to involve procurement and suppliers at an early stage of development. Suppliers are primarily selected on their technological capabilities and invited to take an active role during the development stage. After development, suppliers are requested to submit quotations, which, in most cases, are very competitive due to the fact that the supplier has gone through its **learning curve** earlier than its competitors. Also, ASML, a manufacturer of high-tech wafer steppers in the Netherlands, is practising this approach in its supplier relationships. This company needs to be innovative in its approach to suppliers, since the technology that it produces will be out of date within 18 months.

Learning curve The learning curve was originally developed in the US aircraft industry. It was discovered that the cost price per aircraft decreased at a fixed percentage as experience, i.e. the cumulative production volume of a particular type of aircraft, doubled.

Today's business world is considered to be volatile, uncertain, complex and ambiguous (VUCA) at the same time. Procurement strategies and operations, therefore, need to be aligned with the company's overall strategic objectives and product/market strategies in a dynamic way. To achieve this, procurement directors need to consistently monitor the internal context (i.e. business strategy, total spend, procurement processes) and external business context (i.e. customer markets, supplier markets and geo-political developments) and adapt their procurement strategies and operations towards it.

Analogous to the management cycle, the following successive elements are identified in managing procurement: (1) procurement context analysis; (2) determining procurement objectives; (3) determining procurement strategy; (4) action planning; (5) implementation; and (6) control and evaluation. Each of these activities is part of the procurement management process (refer to Figure 3.3). A more detailed description of each of these activities follows.

Figure 3.3 The procurement management process



Procurement context analysis The systematic gathering, classification and analysis of data considering all relevant factors that influence the procurement of goods and services for the purpose of meeting present and future company requirements.

PROCUREMENT CONTEXT ANALYSIS

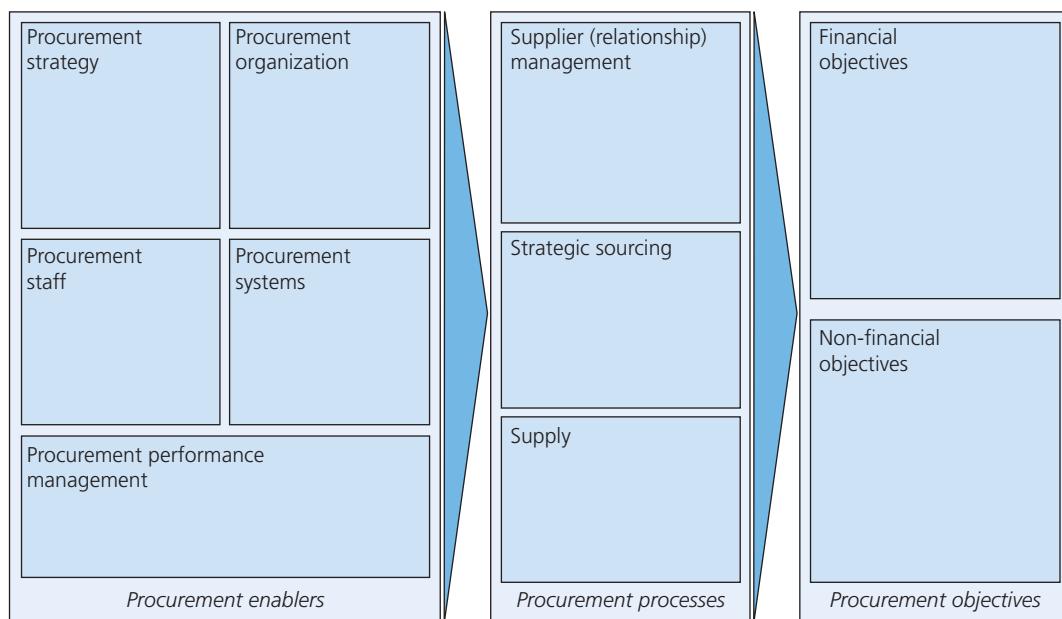
Procurement context analysis can be defined as the systematic gathering, classification and analysis of data considering all relevant internal and external factors that influence the procurement function for the purpose of meeting present and future business requirements. Examples of external analyses are supplier studies, supply market studies, supply chain mappings, and materials cost and price analysis. Examples of internal analyses are business reviews, total spend analysis, procurement process efficiency studies, purchasing portfolio analysis, and analysis of the costs that may be related to holding inventory. The context analysis is used first of all to support procurement strategy development and decision-making. It must generate relevant data and scenarios on which the procurement management can decide on where they need to adapt in order to improve procurement performance and/or future proof the procurement function.

PROCUREMENT CANVAS: PREPARING OBJECTIVES, STRATEGY AND ACTIONS

Based upon the company's overall objectives, procurement objectives will relate to cost reduction, reduction of the supplier base, improving product quality, lead-time reduction, innovation, driving sustainability in the supply chain and so on. Through these objectives the company directs, manages and controls its procurement activities and relationships with suppliers. In line with these procurement objectives, procurement management can focus on different areas for action: procurement processes and enablers (refer to Figure 3.4).

Figure 3.4 Procurement canvas: defining objectives, strategies and actions

Source: Rozemeijer, F. (2008). Purchasing myopia revisited again? Journal of Purchasing & Supply Management, 14, 205–207.



With regard to the procurement processes, three process areas need to be defined, conceptualized and implemented. Once implemented they should be monitored continuously and when needed adapted to the changing business context:

- **Supply.** Here, procurement management should be aimed at the optimization of both the purchase-to-pay process and the incoming materials flow. Purchase-to-pay processing entails handling of procurement requisitions, purchase orders and expediting, as well as the development of efficient, digitalized routines with regards to receipt, three-way matching and payment of invoices. Materials and supply planning relates to issuing materials planning and delivery schedules to suppliers, reducing supplier lead-times, troubleshooting in case of delivery problems, reducing (pipeline) inventories and monitoring supplier delivery performance.
- **Strategic sourcing** (i.e. category strategy, in/outsourcing, sourcing). Procurement management has to make important decisions in terms of supplier strategies. How many suppliers are needed per spend category? For what spend categories are we going to reduce or increase the number of suppliers? Are we going to pursue a relationship based upon partnership or one based upon competitive bidding? Which products do we need to source globally and which products do we need to find from local suppliers? These and other aspects are covered in more detail in the category plan and sourcing strategies, which we discuss in more detail elsewhere.

- **Supplier relationship management (SRM)** (i.e. supplier segmentation, supplier development, early supplier involvement). The SRM related activities are focused on the systematic management of the company's supplier base. First, decisions need to be made as to which commodities to pursue in a multiple sourcing strategy: to go for single sourcing or a partnership relationship. Suppliers who actually perform best should be rewarded with more business in the future. Targets and possible projects for future co-operation should be determined carefully. Relationships with suppliers who consistently fail to meet the company's expectations should be terminated. However, such decisions need to be made based on detailed data on how the supplier performed in the past, and be implemented carefully.

Besides giving attention to the core processes, procurement directors also need to recognize five important enablers that need to be in place to perform procurement processes:

- **Procurement strategy.** The more explicit the company is about the goals and objectives it wants to realize, and the more formalized the planning process, the greater the chance that procurement issues can be integrated into the overall company strategy. It is generally assumed that the more competitive the business context and the more mature the technology in the industry in which the company is operating, the higher the pressure on procurement will be to contribute to the top and bottom lines. Top management commitment, the degree to which top management shows active interest and involvement in procurement strategy and supply issues, is one of the most important enablers for procurement.
- **Organization.** How should the business formally set up procurement processes? How should the business coordinate procurement processes across multiple business units? How should the business define primary procurement tasks and responsibilities? What degree of centralization/decentralization should be applied?
- **Staffing.** What knowledge, skills and competences are needed in procurement? What job profiles can be defined? Should the business invest in a procurement training and development programme?
- **Procurement systems.** Digital information and communication technology is considered to be an important enabler for the implementation of modern procurement and supply chain management strategies. Several operational and tactical procurement processes (e.g. purchase-to-pay, e-sourcing) can be automated, and spend analysis software can be used to analyze spend data and buying behaviour.
- **Performance management.** The performance of the procurement function is measured in terms of the overall financial and non-financial value contributed to the organization's success. What should be measured and evaluated? What measures and techniques exist to perform such an evaluation? How could an evaluation system be implemented? How should procurement processes be benchmarked?

IMPLEMENTATION OF PROCUREMENT STRATEGY

A central question for procurement managers is how to turn intended strategy into action. Until now we primarily answered the 'what' question: what could procurement do to improve its contribution to the competitiveness of the company? But, how to make it happen? Implementing a new strategy requires change, and change is a complex venture

that calls for several coordinated measures. Change can be initiated in different ways. A company can, for example, start by changing the organization (e.g. work towards a clear purpose for the procurement department to clarify important shared values and beliefs) or systems (e.g. implementing a new e-procurement system). Change can also be initiated with a training or competence development project for procurement professionals, or by testing a new way of working in supplier relationships with only a few specific suppliers, and then, if it is functioning adequately, spread the experiences to other suppliers. There are numerous ways of running change processes as such, as top-down or bottom-up process, as revolution or continuous improvement, etc., but they are not all equally effective in all situations. It all depends on the specific context in which the change is initiated and how it is executed.

Implementing a procurement strategy requires a lot of communication. The facilities to communicate both internally and externally for procurement managers have improved considerably in recent times due to the (emerging) digital technologies. Most companies at this time are only at the beginning of discovering the vast opportunities in procurement that these new digital technologies offer. For example, companies may employ their own procurement website in order to communicate their future strategy and (new) ways of working with their suppliers (refer to Memo 3.4).

Memo 3.4

Reverse marketing at Philips

The 'Supplier Homepage' on the Philips corporate website provides an interesting example of how large manufacturers communicate with their suppliers nowadays. Philips uses the website as a marketing instrument to inform suppliers about their current procurement vision and strategy. Through this website future 'partners' (as Philips likes to refer to suppliers who are capable of delivering superior value to their customers) can inform themselves about what it takes to become a prospective Philips supplier.

There are many other companies that have a procurement website as part of their corporate website to communicate with suppliers (e.g. Sony, Walmart, Vattenfall, Boeing). Usually the following information is communicated to their supplier communities:

- description of company policy, strategy and structure
- vision on procurement and supplier relationships
- what it takes to qualify as a prospective supplier
- structure of the procurement organization
- list of persons that may be contacted

- invitation to submit quotations for certain products or services
- description of the supplier quality and sustainability programme
- general procurement conditions and compliance with laws and regulations
- recent press information that may be relevant for suppliers
- summary of current innovation challenges, with an invitation to suppliers to come up with suggestions and/or solutions.



Often some parts of these procurement websites are confidential and only open to suppliers who are part of the company's established preferred/key supplier community. For example, through their 'Supplier Portal', Philips provides both employees and suppliers with secure, 'single sign-on' access to dedicated supply management performance data, processes and tools.

PROCUREMENT CONTROL AND EVALUATION

Procurement management must see to it that both results and activities that have been planned are realized within the available (financial) resources and within the estimated time period. To this end the actual performance, obtained through procurement activities, must be periodically checked against the procurement plans. In most cases reports are

required about the savings and costs reductions realized through (cross-functional) procurement activities. Furthermore, the performance of suppliers (especially on delivery and quality) should be checked periodically. These subjects need to be reported to management through a consistent procedure including a comprehensible procurement dashboard, so that management is able to assess overall procurement performance.

As Figure 3.3 showed, the procurement management process is in fact a closed loop. If one of the elements receives insufficient attention, the effect will be that activities will become difficult to control. When objectives and concrete targets are absent, this will lead to a situation in which procurement activities will lack clear guidance. When objectives and targets have not been translated into detailed action plans, this will lead to a lack of understanding of who is responsible for doing what. The absence of a management reporting structure is often a prime reason why managers do not understand what procurement has contributed to the company's top and bottom lines. In many companies, elements of this procurement management process are ill-structured. This is one of the reasons why procurement in those companies is poorly developed. Most problems related to procurement management, therefore, are problems of management rather than the procurement domain itself.

How procurement develops over time

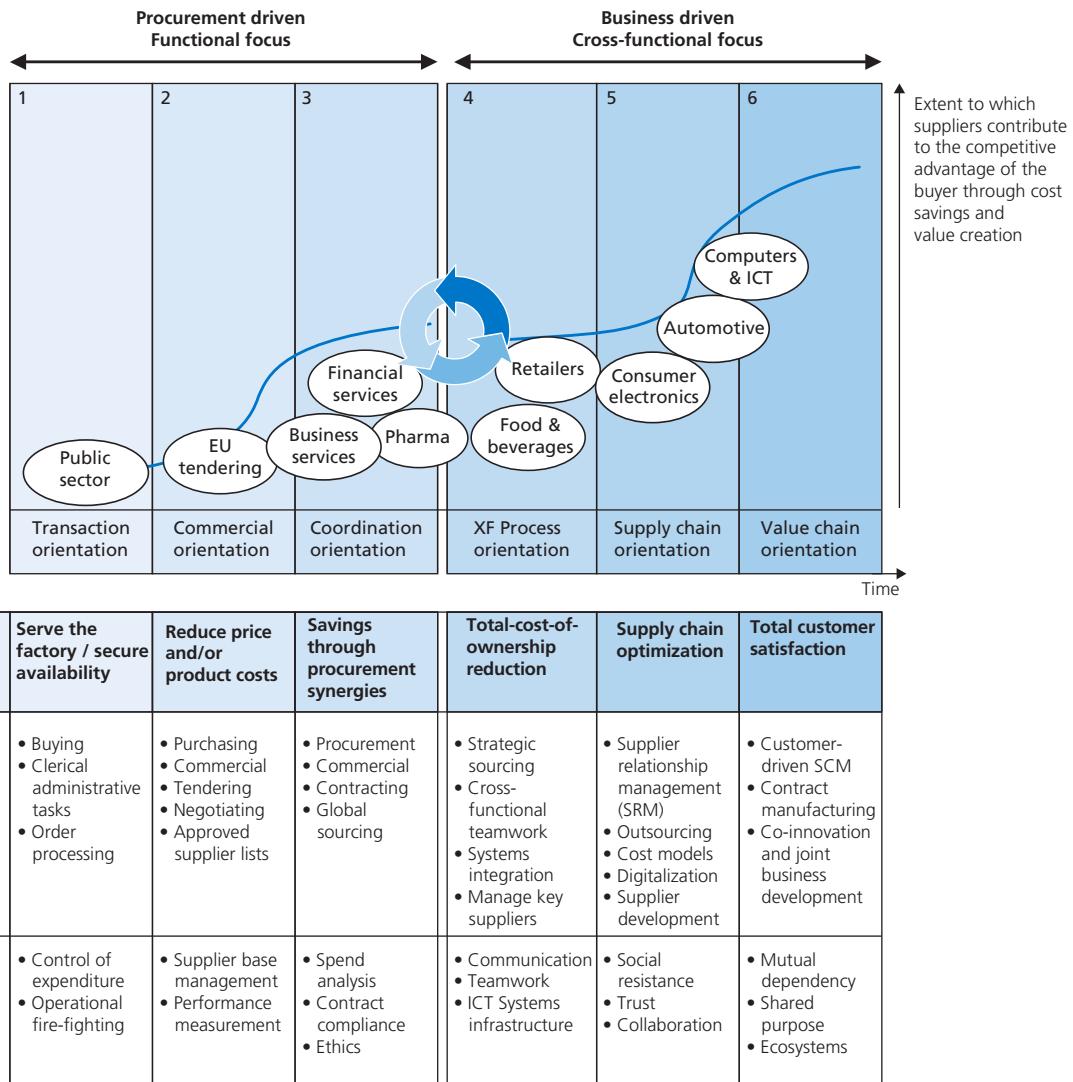
The professional development of the procurement function can be analyzed from different angles or aspects. To guide the functional development, so-called procurement development models have gained popularity over the past decades (Andreasen & Gammelgaard, 2018; Barth, 2018; Reck & Long, 1988; Schiele, 2007). The majority of these procurement development models build on the notion of the organizational life cycle model, which introduces the idea that organizations go through different levels of maturity over time (Rozemeijer, 2008, p. 206). In other words, they assume a stage-wise or step-wise development of the procurement function towards a final stage of excellence towards which all improvement efforts should be directed. In this final stage procurement is business driven, strategically oriented, integrated into the major lines of business, and line management is actively involved in developing and implementing procurement strategies. Further, close collaboration takes place with key suppliers to enable them to contribute to the competitive position of their customer. Also, at this final stage, it is assumed procurement processes are organized around multidisciplinary, team-based structures. Procurement maturity models can be used to assess the current level of functional excellence in the procurement function, define the future position and support managerial decision-making on the transformation and change agenda.

Based upon our research, we propose the following model, which can guide procurement directors in professionalizing their procurement function. We refer to this model as the **procurement development model**. It assumes that in order to professionalize procurement, companies need to go through six different stages (refer to Figure 3.5). However, as we will explain, not every company needs to end up at stage 6.

Procurement development model This model identifies six stages of development over time, indicating how procurement may develop in terms of professionalism within a company. These six stages are: transaction orientation, commercial orientation, co-ordinated procurement, internal integration, external integration and value chain integration.

STAGE 1 TRANSACTION ORIENTATION: SERVE THE FACTORY

In this first stage, the primary task of procurement is to find appropriate suppliers and ensure that the company's operations' processes do not run out of raw materials and components. There is no explicit procurement strategy in place. Formulation of

Figure 3.5 Procurement development model

procurement goals is very rudimentary and intuitive. The value-added of the procurement function is considered to be securing availability of the right materials and goods for operations. The organizational structure can be characterized by a decentralized sub-department at business unit level, reporting mostly to an operations, production or logistics manager. The procurement function is strongly oriented on operational and administrative activities. Non-production buying is predominantly done by users themselves and is considered by procurement as of secondary importance. There is very little knowledge of what is exactly the total procurement spend of the company. The culture is 'reactive'. Management is based on complaints. No complaints means procurement does a good job. The information systems, if in place already, are developed by procurement and very much administratively oriented. The procurement staff consist usually of operational and administrative buyers, strongly oriented to their day-to-day operational fire-fighting and with few professional qualifications to do the job.

STAGE 2 COMMERCIAL ORIENTATION: LOWEST UNIT PRICE

At this stage, a proactive type of procurement manager is recruited who can negotiate credibly with suppliers for lower prices. Striving for the lowest unit cost requires some independence from functions such as product development, engineering and manufacturing. As a result, procurement, while reporting to a senior executive or CFO, has more autonomy. Procurement strategy at this stage is characterized by a sharp focus on low prices and realizing savings. The procurement function has its own department at business unit level reporting directly to the business unit manager or CFO, who is interested in the savings that procurement adds to the bottom line. At this stage, the procurement function more and more becomes a specialist function. Specialist buyers are organized around different product groups or spend categories. Buyers are concentrated on negotiating and contracting 'good deals'. The culture is that of playing hard negotiations with many suppliers. Management monitors on low prices and savings. Performance measurement is focused primarily on price (variances) versus budget, cost savings and delivery performance of the suppliers. Cost savings are used as a prime performance indicator for assessing procurement's overall effectiveness. Procurement staff consist of operational and tactical buyers with 'hands-on' experience. Important skills are negotiating skills and the ability to make supplier price comparisons.

STAGE 3 SYNERGY ORIENTATION: CO-ORDINATED PROCUREMENT

Led by a strong central procurement department to implement uniform buying policies and systems, the emphasis here lies on cross-unit co-ordination and compliance with nationally negotiated contracts. This stage may lead to procurement bureaucracy and lack of responsiveness from the decentralized business units. At this stage, for the first time there is some kind of strategy formulation, aimed at capturing the benefits from internal co-ordination and synergy. Apart from price and costs, the procurement function is seen as having an important influence on the quality level of purchased products. The importance of non-production buying becomes recognized by procurement. Slowly the procurement function is receiving some attention from top management. However, the rest of the organization is still not convinced of the value-adding potential of the procurement function. Sourcing is a central issue at this stage and is characterized by looking for synergy by bundling buying power of the different business units (or parts of the organization) and developing differentiated sourcing strategies based upon portfolio-analysis techniques. The organizational structure of the procurement function is a centralized procurement department at corporate level that is responsible for setting procurement policies. Common, strategic spend categories are sourced by central lead-buyers or sourcing teams. Non-strategic purchases are made locally, within departments and business units. Formalization of the procurement process and procedures is at full speed. The focus is on improving communication between the central procurement unit and the decentralized business units. There is a clear intention to foster collaboration between business units. Procurement information systems that are able to provide detailed spend and supplier overviews are in place now, but are often not yet fully integrated and linked to each other. Procurement staff have a specific procurement background and training, and there are a large number of different procurement jobs in place. Specific procurement training programmes are aimed at developing analytical skills, strategic sourcing techniques, negotiation and communication skills.

STAGE 4 INTERNAL INTEGRATION: CROSS-FUNCTIONAL PROCUREMENT

At this stage, the emphasis shifts towards cross-functional team-based problem-solving with the objective of reducing TCO and not just the unit cost (price) of purchased goods and services. These cross-functional efforts often include involving key suppliers as joint problem-solvers, which implies a move from confrontational to more partnership sourcing. Until this stage, the procurement function was very much functionally oriented (i.e. procurement driven) and trying to organize the company around the procurement function. At this stage, procurement is becoming more business driven and process-oriented, trying to organize the procurement function around the business stakeholders. Business leaders become more involved as they feel that procurement is too important to leave to only buyers. There is serious attention for non-production related spend categories (e.g. IT, MRO, travel, professional services). The strategic importance of the procurement function comes to full recognition, and procurement is involved in strategic issues such as core/non-core and make-or-buy decisions. The structure is 'centre-led'. Operational buying disappears in the line, i.e. is integrated with materials planning or scheduling or line planning thanks to the introduction of advanced digital catalogues and order-to-pay systems. The culture is characterized by team-based management, illustrated by the many cross-functional sourcing teams that are now in place. Improvement actions are aimed at integrating procurement processes in the business units and functional departments. At this stage, the focus is still mainly internal but process-oriented. Procurement systems are integrated with those of other departments/functions, but not yet with those of the most important suppliers. **Procurement performance measurement** is done in the form of internal customer satisfaction surveys and (external) procurement excellence benchmarking. However, a strong focus on realizing hard and soft procurement cost savings remains. People involved in the procurement process have a broad business perspective and a high educational level. Apart from category management, sourcing and typical skills looked for at this stage are strong team-building abilities and strong communication and influencing skills.

STAGE 5 EXTERNAL INTEGRATION: SUPPLY CHAIN MANAGEMENT

This stage is characterized by an explicit outsourcing strategy combined with extra attention to collaboration with supply chain partners on new product development, process improvement, business growth (e.g. production capacity) and sustainability. The procurement function concentrates on creating maximum leverage of the company's external resources. Category sourcing managers seek to obtain solutions submitted by strategic suppliers rather than dictate product and service specifications to them. These suppliers are actively involved in new product development and process improvement and often located very near or even residing within the company. Non-production buying is fully supported or executed by the procurement function. Internal users order the products that they need themselves against corporate contracts through advanced digital catalogue systems to which some major suppliers have been connected. This is especially true for the non-production spend categories. Procurement works hard to make things as simple and fast as possible for their internal customers, by using systems contracting, procurement cards and digital technologies. Supplier management becomes supplier relationship management (SRM) at this stage. Companies invest a lot to really involve key suppliers in different business processes, instead of just buying goods and services from them as efficiently and effectively as possible.

Procurement performance measurement

Six dimensions are suggested on which measurement and evaluation of procurement activities can be based: (1) a price/cost dimension; (2) a product quality and innovation dimension; (3) a logistics/delivery and supply chain dimension; (4) a sustainability dimension (5) a procurement organization dimension; and (6) a supplier relationships dimension.

Residential engineering Situation where engineers from the supplier are co-located on a more or less permanent basis at the buyer's organization, in order to work on design or manufacturing problems which appear during the successive stages of development. Residential engineering also relates to a situation where a large OEM has placed its own engineering specialists at the supplier's premises in order to resolve a variety of technical problems.

Responsibility for category sourcing resides with cross-functional teams (inter-divisional and inter-organizational) and is no longer executed by an individual buyer or separate department. There are **residential engineering** teams, and improvement teams with members from different disciplines, divisions and organizations (suppliers). Integration with other disciplines, divisions and especially suppliers is at full speed, to enable integrated supply chain management. The procurement management style is business and performance driven, though supportive and coaching at the same time. The culture is characterized by participation and consensus style decision-making. Important skills are knowledge of TCO principles, being able to build and use detailed cost models, strategic supply chain management, and general managerial and leadership abilities. Digital procurement systems are not only integrated internally but also with the systems of the partner suppliers.

STAGE 6 VALUE CHAIN ORIENTATION

The 'procurement' strategy in this stage will be based on the recognition that most important for success is delivering value to the end-customer. Suppliers are actively challenged to support the company's product/market strategies and to engage in business development and innovation projects. The goal is to jointly develop the most efficient and effective value chain possible to serve the end-customer. Apart from contributions to the bottom line, suppliers are now challenged to also contribute to the company's top line, i.e. to create additional sales revenue through new business development and innovation. Procurement strategy is evaporated in the total business strategy. The orientation is end-to-end supply chain both upstream as well as downstream. In fact, the marketing and procurement functions are more and more integrated. The culture is entrepreneurial and innovative. Digital technologies are being used and information systems are integrated across the value chain as much as possible.

Although this procurement development model³ may seem rather straightforward, some critical remarks must be directed towards it. It must be noted that the model has never been tested by thorough academic research (Rozemeijer, 2008). It is important to question and test the validity and reliability of this model. Is the process of development in procurement a rational process, as the model suggests, or rather an irrational one? Does procurement development really take place as a process of continuous change or is it in reality characterized more by step-changes and discontinuity? What change strategies underlie procurement development processes in organizations? Do all organizations follow the stages identified or can some stages be skipped? To what extent are procurement managers the most decisive actors in the process of procurement development? Or are they rather receptive in general and are the real change agents coming from other disciplines?

Questions that are often raised are: how much time does it take to go through the different stages of the model? Is it possible to skip some stages in the model? The answer is not easy to find. One can say that it will take about two to three years on average to move from one stage to another. As experience shows companies will move faster through the learning curve as their need for cash is more urgent and as they put more resources into the process of change. It should be noted that a specific company could in some aspects act on level 5 and in others on level 1. For example, sourcing business services (e.g. legal services, consultancy, maintenance) seems, in general, to be an area less exposed to more advanced procurement practices, than product-related spend categories.

³Sometimes referred to as 'procurement maturity model'.

The model assumes that there is an ideal stage for every company, i.e. the sixth stage of value chain integration. This need not necessarily be so. A procurement department could do a very good job in terms of performance even though it is not operating at the highest possible level of excellence. Stage 3 (procurement co-ordination) could be sufficient when buying commodities. However, when buying complex technical systems (such as gearboxes for trucks), input from suppliers in the design stage could be useful. Therefore, it could also be useful to integrate the suppliers into the company's new product development processes (which is suggested by stage 5, i.e. external integration). More advanced ways of working demand higher skilled procurement professionals resulting in higher salaries to be paid. It could also require more expensive supporting digital technologies to automate procurement processes. Altogether, this could in specific cases (e.g. small firms) turn out to be too high a price to pay in comparison with the potential gains of working in a more advanced way.

There is not always a natural growth-path from left to right; sometimes companies may revert or fall back one or several stages. The reasons for this may be *external*. For example, some US car manufacturers (e.g. GM, Ford, Chrysler) reportedly went back to 'old fashioned' buying behaviour with an extreme focus on price only, in the early 2000s when they were faced with heavy price competition in their customer markets. The reasons may also be *internal*, for example when a new procurement director with a different vision on procurement is hired. The point here is that there might be particular instances when a 'less mature' orientation is required to bring procurement strategy in line with overall business objectives. For some companies, procurement may just not be strategically important enough and the procurement department as such not skilled enough to make it worth the investment in transforming procurement.

Some observations from practice

So far, we have described the most important elements of the procurement management process. As we have seen, it is important to create a closed loop between the different process elements. If such a closed loop is not present, procurement activities may suffer from a lack of control. The procurement objectives should be aligned with the overall corporate and business strategies in order to prevent sub-optimization. In our experience, it is very difficult to create such strategic alignment and to create a systematic and consistent approach to procurement processes and procurement decision-making.

Procurement responsibilities and tasks are in many cases ill-defined. Procurement procedures, if present at all, are limited to administrative matters such as the routing of requisitions and order forms and procurement authorization. Clear targets and objectives for the procurement function are often not in place. Where targets and objectives are present for other business areas, in many cases these are still missing for procurement. As a result, the actual performance in the area of procurement can barely be measured or monitored based on regular management reporting.

However, in recent times, significant progress has been observed. Procurement digitization has improved and freed up buyers from administrative and operational duties (i.e. 'fire-fighting'). The willingness to invest in the development of procurement has increased. Furthermore, procurement is increasingly considered to be a revenue rather than a cost factor. As a result, procurement professionals with professional qualifications and more relevant business experience are being recruited. Procurement has become

more integrated with other business domains, such as operations and supply chain management. The increasing popularity of supply chain management is just an example of this. In many leading companies, procurement professionals become ever more involved in new product development, business process improvement and new business development. Many companies have now recruited chief procurement officers (CPOs) who bring in extensive management and the necessary business experience to lead the procurement transformation process. These are all clear signs of a growing acceptance of procurement in business. However, there still remains a lot to be done.

Summary

In summary, the argument is that most companies have a large potential for professionalizing procurement. A systematic approach to managing the procurement function can help make this potential visible and accessible.

The tasks, responsibilities and authority of the procurement function must be established first: securing availability of required materials and services at consistent quality from reliable suppliers (i.e. operational excellence) is the prime task and responsibility of procurement. However, activities should not be exclusively limited to this. Procurement management should also strive for continuously improving the price/value ratio in the relationship with suppliers. Materials price control and cost reduction are therefore important policy areas. At the same time the risk exposure, in terms of the company's dependence on suppliers, should be minimized. Furthermore, buyers should be alert to technological innovations that take place in their supplier markets, which may be beneficial to the company.

Managing procurement implies that all elements of the procurement function are defined, implemented and managed. Procurement objectives and strategy need to be derived from the overall company strategies and should support these. They need to be translated into procurement processes leading to strategies and action plans, indicating what procurement performance will be targeted in terms of cost reduction, supplier quality improvement, improving supplier performance and internal efficiency. Further, procurement management should design an appropriate organizational structure, implement digital support systems, recruit and retain skilled procurement professionals and periodically deliver detailed performance reporting.

Putting all these elements of the procurement management process in place takes time, however. This explains why differences exist in procurement operations between companies, even if they operate in the same type of industry. The procurement development model that has been presented in this chapter provides a picture of the stages companies may go through when they want to develop procurement professionalism. However, this model should be used carefully, for all stages may not be relevant for all types of commodities, companies and industries, as some authors may want us to believe.

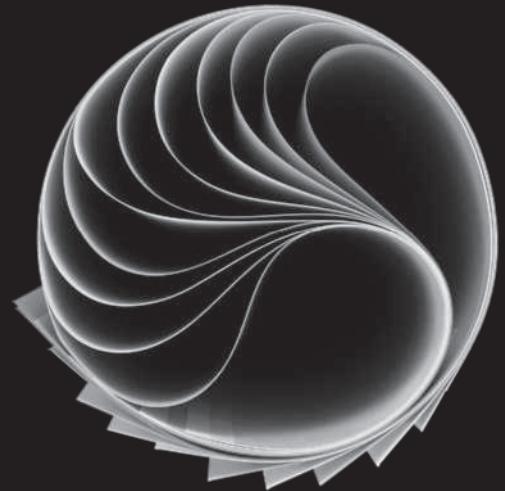
Assignments

- 3.1** In this chapter some major tasks and responsibilities have been described which can be attributed to procurement management. What would you consider to be the most important task of procurement professionals? Why?
- 3.2** Discuss in what ways procurement professionals could contribute to cost reduction. Next, what would you consider to be the most important risks of continuously pressing for cost reductions in supplier relationships?
- 3.3** A popular measure in procurement cost down initiatives is to reduce the number of suppliers. What would you consider to be the most important benefits related to supply base reduction? What major obstacles might you expect from within your company if you were going to reduce the number of suppliers? Discuss.
- 3.4** A reporting structure has been presented as an essential part of the procurement management process. If you were a procurement manager, what would you report to your superiors on a monthly basis? Would you report the same thing to your production and logistics manager? Discuss.
- 3.5** This chapter discussed a six-stage procurement development model. It suggests that procurement as a discipline moves from one stage to another. What kind of problems and/or resistance might procurement managers expect in their company when transforming procurement from stage 1 to stage 2, from stage 2 to stage 3, and so on?

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Processes and strategies



- 4 Outsourcing**
- 5 Category sourcing: developing effective sourcing strategies**
- 6 Sourcing business services**
- 7 Contracting and contract management**
- 8 Public procurement**

SECTION II

4 Outsourcing

Learning objectives

After studying this chapter you should understand the following:

- Why companies outsource part of their business processes.
- How to structure the process of outsourcing.
- The most important risks and pitfalls related to outsourcing.
- How to deal with the most important downside risks related to outsourcing.

Introduction

For every business there comes a time when it needs to face the ‘make versus buy’ choice and consider the benefit of outsourcing certain activities, components, products or services. Should Air France-KLM operate its own maintenance services or rely on independent external service providers? Should KFC consider owning and operating its own warehouses and distribution network, or leave it to a third-party logistics (3PL) services provider? Is it wise for Heineken to manufacture all of its own beer cans and bottles, or is (partly) buying from suppliers a better strategy?

From small startups to large well-established companies, all have to strategically think about their value chain. They need to decide on what activities to perform themselves (make) and which ones not (buy), and how to best get access to the key resources and core competencies needed to satisfy their customers, grow their business and gain competitive advantage. There is no single best strategy. For example, Apple is known for focusing on product development and marketing while outsourcing production and assembly to electronic contract manufacturers, such as Foxconn. Tesla, on the other hand, wants to be fully in control of its value chain (i.e. battery production, product development, car design, assembly, marketing, sales and after-sales services) and outsources far less.

The decisive criterion is the question of whether an activity contributes to achieving a competitive advantage and whether that activity is (or can be) performed in a competitive way by the company. If this is not the case the company should consider outsourcing that specific activity. However, a careful strategic analysis of the company’s value chain may also result in a decision to bring an activity that initially was outsourced, back in-house (i.e. insourcing). GM may serve as an example here. GM was, for its IT services, an early adopter of outsourcing and offshoring. At a certain point in time, its IT department consisted of 1,400 internal employees compared to 20,000 contractor employees from

35 different IT providers. Dan Akerson, GM's CEO, was a firm believer that IT was a strategic part of GM's future strategy, and decided in 2012 that GM needed to take full control again and steered back IT outsourcing. Today, after a multi-year transformation, GM's IT department has about 10,000 internal employees who are 100 per cent focused on GM's business needs. No outsourcing agreements are in place (High, 2018).

Apart from manufacturing activities and services activities, such as IT and call-centre services, logistics activities also are increasingly being outsourced to specialist third-party logistics services providers (i.e. 3PL, 4PL) such as UPS, FedEx and DHL. As a consequence, the activities of these suppliers and their customers become increasingly intertwined. Today, suppliers in many industries have a business-critical position in their customers' value chains.

The case study, Outsourcing of IT, explains what can happen to firms that act too quickly in the area of outsourcing. Identifying and deciding between core and non-core activities within a firm is one matter; putting this idea into practice is another. Companies must realize that when complex activities such as IT are outsourced to an outside specialist based upon a single source agreement, the risk profile of the company will change dramatically. Decision-making exclusively based upon economical and financial considerations may lead to disappointment. Later, at the stage of implementation, the perceived and expected savings and economies are often more than outweighed by the price the company has to pay for its total dependence on the partner that was selected. Such situations cannot be quickly changed.

The objective of this chapter is threefold. First, to determine whether and under what circumstances outsourcing is a successful business strategy. Second, to determine what the critical success factors of outsourcing are on a strategic, tactical and operational level. And, finally, to identify the most important risks related to outsourcing decisions and how these can be managed. In this chapter, first the concept of outsourcing will be introduced by presenting the factors behind the growth of outsourcing as a business strategy and the different activities that can be outsourced. Then, the different definitions and concepts of outsourcing are presented, followed by the rationales for outsourcing. Finally, the risks related to outsourcing are discussed.

Outsourcing as a business concept

In an attempt to enhance their competitiveness, organizations are increasingly turning to outsourcing. Not only are changes in the business environment drivers of the rise in outsourcing, also management concepts such as business process re-engineering, organizational restructuring, benchmarking and alliance management have stimulated the trend.

The Outsourcing Institute reported that outsourcing in the United States in 2000 had become a standard business practice across small and large companies in just about every industry. From 1996 onwards, outsourcing grew at a tremendous rate. Just to illustrate, the global market of outsourced services in the United States grew from US\$45 billion in 2000 to US\$92.5 billion in 2019 and is predicted to grow to US\$105.5 billion before 2025.¹ This trend is visible in Europe and Asia as well, where the market

¹Source: www.statista.com.

Case study

Outsourcing of IT

The telecom market in many European countries has been a playing field of fierce competition. Traditional, state-owned telecom companies have been privatized and new players have entered the field. The period of unprecedented growth for mobile phones in many European markets has come to an end. As new technologies and applications have become more mature, value propositions have become more alike among the different providers, enabling consumers and businesses to shop around for the most attractive prices and rates. This is facilitated by the internet, where consumers have better access to benchmark information, enabling them to go for the best rates and deals. This has put significant pressure on the margins of the providers, who as a result are desperately seeking opportunities to cut costs. Moreover, many of them are seeking ways to improve their poor cash position resulting from their decisions to pay high amounts of money to win government initiated tenders to obtain 4G or 5G frequency licences. The participation in these tenders, requiring billions of euros, has consumed most of the cash of these players.

Against this background a major telecom player in Europe looked for drastic measures to both reduce its operational cost dramatically and improve its cash position. After a careful selection of projects it decided to outsource all of its IT activities and call centres. The outsourcing deal for IT, which was negotiated some years ago with one of the large IT providers, encompassed the sale and lease back of all hardware, peripherals and other IT infrastructure and all software. The IT provider, which was selected after a competitive tender, also had to take over most of the company's IT staff. The future relationship was based upon a thorough long-term service-level agreement, which consisted of a detailed description of the activities to be performed by the IT provider, and the costs and rates that could be incurred. Of course the agreement described the impressive sum of money to be paid to the telecom company. It was agreed that rates and fees would be paid to the IT provider based upon a limited number of critical KPIs, which would be monitored and discussed on a monthly basis between the parties involved. For this a complex communication structure was set up at both organizations, involving several working groups, technical committees and steering platforms.

After two years it became clear to the telecom account team that things had not worked out as intended. First of all, the IT provider was dissatisfied about the sums that were paid; in hindsight, since prices of hardware and software had gone down significantly during the contract period, the IT provider thought it had paid far too much when buying the hardware and software. In order to secure its margin and recoup part of the investment, it started to cut costs in its services to the telecom company. By putting inexperienced, lower paid staff on crucial service functions (such as help desks) the service level to the telecom's internal staff developed to an unexpectedly low level, leading to all kinds of disruptions in simple but crucial operational processes. Next, although the contract stipulated the use of leading-edge technology and although investment schedules were agreed upon, the IT provider postponed investments in new solutions. Furthermore, there was a constant debate about extra allowances, rates and fees to be incurred by the IT provider. The final problem was the IT company warning that if bills were not paid by the telecom provider on time, this would lead to disruptions or even temporary stoppage of services. This all led to a situation where internal staff constantly started to challenge the outsourcing decision that was made. Most of the staff felt that the IT provider was not up to its tasks and wanted to insource most of the IT activities again.

for outsourcing has also showed double digit growth. The reason for this growth is that companies view outsourcing as a way to achieve strategic goals, reduce costs, improve customer satisfaction and provide other efficiency and effectiveness improvements. This makes outsourcing a mandatory business strategy for companies to compete in today's competitive market environment. In general, outsourcing is viewed as one of many approaches to maintaining or developing competitive advantage.

Theory snapshot 4.1

The resource-based view of the firm

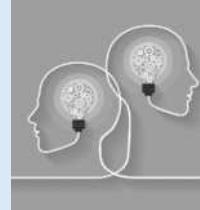
Based upon the so-called **resource-based view of the firm**, Rumelt (1991) and Wernerfelt (1984) argued that differences in performance and innovation between companies were not primarily to be attributed to the products they delivered or the market environment in which they operated. Rather, these differences in competitive performance were to be attributed to their resources and the way these resources were actually used. Successful companies seemed able to utilize their resources better and more effectively than their competitors. Resources include the combination of human capital, financial resources, technology and knowledge. However, the relationships that companies were able to develop with clients, employees, unions, suppliers and investors were also considered to be important resources. As Wernerfelt (1984) argued, differences in competitive performance resulted from how the combination of resources and relationships were used to solve specific customer problems and needs. Profit was considered not to be an end in itself. However, this was to be considered as a measure for how successfully a company was able to create customer satisfaction. Better solutions and need fulfilment would lead to more satisfied customers, who were then willing to pay a surplus for products and services.

With their practitioner-oriented publications, Quinn (1992) and Prahalad and Hamel (1990) were responsible

for a broader adoption of the resource-based view of the firm theory. These authors argued that companies should differentiate between **core competencies** and **non-core competencies**.

They argued that companies should focus on their core competencies, while outsourcing their non-core competencies to suppliers who do specialize in these non-core competencies. In that case, the company would become more focused and more flexible to adapt to external uncertainties. As a result, business managers brought their diversification strategies to a halt, investing in core activities and divesting activities that were considered as non-core. Next, internal activities were benchmarked against those of specialist suppliers. As a result, companies started to outsource important parts of their business processes.

Our observation is that during the 1990s, competence-based thinking resulted in a changing role for procurement and supply chain management. Within a decade, the purchasing-to-sales ratio in companies started to increase to often 60–80 per cent of their total cost of goods sold (COGS), making companies more dependent on supplier relationships and performance.



The types of activities that are outsourced have evolved over time. It all started out with outsourcing specific *activities*; nowadays more and more entire business *functions* are being outsourced. Outsourcing is particularly conducted for IT, transport and logistics services, manufacturing, engineering, maintenance and specific customer services (such as call centres). As outsourcing for many firms is becoming a more and more viable business strategy, the questions on how to successfully engage in outsourcing and how to stay successful in an outsourcing relationship are very important.

Definitions and concepts

In general, outsourcing can be described as the transfer of activities that were previously conducted in-house, to a third party. In essence, outsourcing means that the company divests itself of the resources to fulfil a particular activity to another company, to focus more effectively on its own competence. The difference with procurement and subcontracting is that assets, infrastructure, people, competencies and knowledge go over to another party. Both activities may be outsourced as well as complete business

Resource-based view of the firm Theory that business success is primarily achieved through deploying a company's unique resources.

Core competencies Those activities through which the company achieves sustainable competitive advantage.

Non-core competencies Those activities that are conducted within the company that do not contribute to sustainable competitive advantage.

functions (such as IT or manufacturing). Major characteristics of outsourcing are: (1) activities that initially were performed in-house are transferred to an external party; (2) assets, knowledge and, in some cases, people go over to that external party; (3) there will be an extended relationship between the parties involved over a longer period of time; (4) in transferring the activity to the external party the buyer is exposed to both a cost and risk profile, both of which are new to the companies involved; and (5) implementing outsourcing involves a complex transition and change process that affects the role and position of many people and managers.

Offshoring Offshoring relates to the commissioning of work, which was previously done in-house, to a provider in a low-cost country. In many cases, offshoring is concerned with outsourcing of services.

Outsourcing may come in different forms. Companies may decide to go for a nearby or distant solution. **Offshoring** relates to the commissioning of work to a provider in a low-cost country. In many cases offshoring is concerned with outsourcing of (IT) services. Although a common practice, it can be challenging. For example, after the two fatal 737 Max airplane crashes in 2018 and 2019, Boeing was blamed in the press for going too far with offshoring software development and testing (Robinson, 2019). At the time Boeing was laying off experienced software engineers and outsourcing their work to third parties around the world, while pressing these suppliers to cut costs. Suppliers responded by outsourcing parts of the development work to third tier suppliers, often from low-cost countries that lacked a deep background in aerospace, notably India, using low-pay (US\$9/hour) temporary workers to write the software code. Some former Boeing engineers feared this practice meant the code wasn't being written correctly, causing the crashes. Others argued that the software had nothing to do with the airplane crashes. However, one thing was clear: Boeing's reputation as a reliable manufacturer was ruined.

Other terms which are used are 'nearshoring' and 'onshoring'. Nearshoring concerns outsourcing of activities to nearby low-cost countries. Onshoring concerns outsourcing of activities to providers which are operating in the same country as the customer organization. Nearshoring and onshoring are sometimes seen as preferred outsourcing options, as the geographical proximity leads to shorter lead time delivery and easier communication (refer to Memo 4.1).

Integral outsourcing
Integral outsourcing applies when the responsibility for the execution of the entire outsourced function (or set of outsourced activities) lies with the external provider. This includes not only the execution of the activities but also the management and co-ordination of these activities.

Now that the basic definitions of outsourcing have been discussed, two additional types of outsourcing can be presented. We differentiate here between integral (turnkey) and partial outsourcing. **Integral outsourcing** applies when the responsibility for the execution of the entire function (or activities) lies with the external provider. This includes not only the execution of the activities, but also the management and co-ordination of these activities.

For example, facilities management services represent 10 to 25 per cent of total indirect spending. Facility management (FM) covers all non-core activities of an organization and comprises five main services areas: (1) building operations and maintenance (e.g. mechanical and electrical services, heating and ventilation, plumbing, fire protection); (2) support services (e.g. cleaning, catering, vending, courier services, security, reception staffing); (3) environmental management (e.g. energy management, waste management, recycling services); (4) IT and telecommunications (e.g. maintenance of IT hardware and software, updating software, intranet services); and (5) property management (e.g. asset management, property acquisition, relocation management). Many companies are exploring integrated facilities management (IFM) in an effort to streamline management and improve cost and quality performance. Integral outsourcing of IFM involves turning over the complete management and decision-making authority of (at least) two distinct FM service areas to one and the same external IFM provider.

Memo 4.1

Supply chain disruptions drive companies towards on/nearshoring

The US-China trade war, climate change and the global COVID-19 pandemic have disrupted international trade forcing businesses and governments to rethink their global supply chains. Previously, globally dispersed supply chains were designed to keep costs low and inventories lean. Today, however, supply chains are redesigned to make them more resilient against the risks of future supply chain disruptions even if doing so means added costs.

The US-China trade war, which began in 2018, has already reshaped global manufacturing and supply chains. US manufacturing imports from China declined by 17 per cent in 2019, a total fall of US\$90 billion, while US imports from other Asian low-cost countries increased by US\$34 billion and from Mexico to the United States by US\$13 billion. China played a dominant role in global manufacturing for many years, but when COVID-19 hit the world, it caused great disruptions in many supply chains. Western manufacturing companies

suffered from a lack of supply. The pandemic has shown that the offshoring of operations to China can make businesses vulnerable. It also made companies consider onshoring and/or nearshoring some or all of their outsourced operations and critical components. A Gartner survey (2020) found that 33 per cent of global supply chain leaders had moved sourcing and own manufacturing activities out of China or planned to do so in the period 2020–2023. For US companies, nearshoring may mean moving a supplier from China to Mexico or Canada. European manufacturing companies often move to Eastern European countries, such as Poland and Slovakia. However, supply chains are complex and interconnected. It is not as simple as it might look like to relocate manufacturing or switch suppliers. It's costly and takes time. The perceived benefits of onshoring or nearshoring will also vary depending on the type of good or service and the companies involved.



This provider may either deliver the services or outsource and manage subcontractors. Most likely, these integral outsourcing contracts may be for a period of three or five years. The global market for outsourced facilities management is projected to grow in the period 2020–2024 by 6.2 per cent per year (Adhikari, Hoffman & Lietke, 2019).

Partial outsourcing refers to the case in which only a part of an integrated function is outsourced. The co-ordination of the function and activities still lies with the client (the buyer). Here a major problem is, of course, how to demarcate the responsibility for the final performance of the outsourced activity between the parties involved. An example is a company which intends to acquire a new IT solution. They may consider developing and implementing this IT solution themselves, or they may opt to outsource the entire project. When considering outsourcing, the company has two options. One option is to go to an integrated software house that will develop, build and implement the intended IT solution turnkey. In this case the supplier will take care of the design of the IT solution, the development and testing, and implementation even up to the point of training the company's employees in getting acquainted with the new solution. The IT company will also arrange all of the subcontractors that will be used for programming, testing and training.

The other option for the company is to do most of the work in-house and to take care of the overall co-ordination of the project. Here, the company will select an IT architect for the systems design. Based upon the design, the company will select other IT partners to work with during the different stages of the entire project. Obviously, the company is then responsible for the co-ordination of the work of all partners involved. Hence, it

Partial outsourcing

Partial outsourcing refers to the case in which only a part of an integrated function is outsourced. The management and co-ordination of the function and activities still lies with the client (the buyer).

will also be responsible for the effective functioning of the entire system, i.e. solution. As these examples show, when outsourcing, many options are available for a buyer and many decisions need to be made. Which outsourcing option is best depends on the time, resources and expertise available and the available budget.

Table 4.1 gives an overview of the advantages and disadvantages of the two types of outsourcing.

Table 4.1 Partial versus integral outsourcing

	Advantages	Disadvantages
Integral outsourcing	Buyer has minimal responsibility for outsourced processes	The buyer has limited influence on the determination of the price and little insight into the cost structure of the provider
	Buyer does not need to have experience with similar projects	The buyer has limited influence on the staff, technology and materials used and their quality
	The project generally goes smoothly for the buyer	Large dependence of buyer on provider resulting in high commercial, technical and performance risks
Partial outsourcing	The buyer has more influence on prices, rates and costs	The buyer is required to have knowledge of the separate parts of the outsourced function/activities
	The buyer has more influence on the staff, technology and materials used and their quality	The buyer is required to have the organizational capacities to co-ordinate and integrate the outsourced function/activities
	Specific advantages can result in cost reductions	Communication and co-ordination problems between parties involved can be a cause of delay and disappointment

A company that considers outsourcing can decide whether it prefers partial or turnkey outsourcing, based on the advantages and disadvantages of each type.

Rationales for outsourcing

Research shows different reasons for firms to engage in outsourcing. Due to the development of outsourcing as a business strategy, these reasons may range from just tactical to more strategic.

Tactical reasons are to reduce operating costs, free up internal resources, receive an important cash infusion, improve performance and be able to manage functions that currently are out of control. Strategic reasons may be to improve company focus, gain access to world class supplier capabilities, gain access to resources that are not available internally, accelerate re-engineering benefits, improve customer satisfaction, increase flexibility and share risks. Memo 4.2 provides an overview of the top ten reasons to outsource. All these reasons underlie one overall objective: to improve the overall performance of the outsourcing firm and increase revenues by enhancing the company's value propositions to its customers.

Memo 4.2

The top ten reasons to outsource

Outsourcing is the process of delegating a company's business process to third parties or external agencies, leveraging benefits ranging from low-cost labour to improved quality to product and service innovation. When outsourcing crosses national boundaries and is managed by companies located in other countries, outsourcing takes the form of offshoring. A hotly debated topic with pros and cons, both outsourcing as well as offshoring have a direct impact on a company's top and bottom lines and have become key components of defining how successful enterprises are run. The top ten reasons to outsource, as reflected by companies, are:

- 1 Lower operational and labour costs are among the primary reasons why companies choose to outsource. When properly executed it has a profound impact on a company's earning capacity as it can deliver significant savings.
- 2 Companies also choose to outsource or offshore so that they may continue focusing on their core business processes while delegating routine time-consuming processes to external agencies.
- 3 Outsourcing and offshoring also enable companies to tap into and leverage a global knowledge base, having access to world class capabilities.
- 4 Freeing up internal resources that could be put into effective use for other purposes is also one of the primary benefits realized when companies outsource or offshore.
- 5 Frequently stranded with internal resource crunches, many world class enterprises outsource to gain access to resources not available internally.

- 6 Frequently, outsourcing is undertaken to save costs and provide a buffer capital fund to companies that could be leveraged in a manner that best profits the company.
- 7 By delegating responsibilities to external agencies companies can wash their hands of functions that are difficult to manage and control while still realizing their benefits.
- 8 Outsourcing and especially offshoring helps companies mitigate risk and is also among the primary reasons why it is embarked upon.
- 9 Outsourcing also enables companies to realize the benefits of re-engineering.
- 10 Some companies also outsource to help them expand and gain access to new market areas, by taking the point of production or service delivery closer to their end-users.



To summarize, among the reasons to outsource, companies undertake outsourcing and offshoring for a variety of reasons depending upon their vision and purpose of the exercise. While this may vary from company to company, the fruits of this labour are visible among some of the leading enterprises worldwide, where outsourcing and offshoring have become core components of day-to-day business strategies.

(Source: 'The top ten reasons to outsource' – courtesy of Flatworld Solutions).

Next, the considerations underlying outsourcing may be either capacity-related or expertise-related. When the company has not enough capacity to perform the requested service, it can opt for outsourcing. This type of outsourcing is defined as 'capacity outsourcing'. When the expertise to perform the activity at the required quality level or for an acceptable cost level is no longer present, the company can also opt for outsourcing. This type of outsourcing is referred to as 'specialist outsourcing'.

Deciding about outsourcing is a delicate matter. It is not (only) a procurement affair. When should companies decide to go for outsourcing and when would they be better off keeping activities in-house? Here, the outsourcing matrix can provide procurement managers with some guidelines (refer to Figure 4.1; Savelkoul, 2008).

Figure 4.1 The outsourcing matrix

Source: Adapted from Savelkoul (2008).

	Maintain/invest (opportunistically) Competencies are not strategic but provide important advantages; keep in-house as long as these advantages are (integrally) real	In-house/invest Competencies are strategic and world-class ; focus on investments in technology and people; maximize scale and stay on leading edge
Level of competitiveness relative to suppliers	Outsource Competencies have no competitive advantage	Collaborate/maintain control Competencies are strategic but insufficient to compete effectively; explore alternatives such as partnership, alliance, joint-venture, licensing, etc.
	Low (non-core)	Strategic importance of competence High (core)

Figure 4.1 shows that the decision to outsource is dependent on two variables, i.e. the strategic importance of a specific competence to the company and the level of competitiveness relative to suppliers. Based upon these variables companies can choose between four options. Clearly, when a company has a high level of competence relative to external providers and, at the same time, the competence involved actually differentiates the company from its competitors, outsourcing is not an option. Hence, the company would go for an in-house solution. Outsourcing of activities should clearly be considered if the company scores low at both variables. When a specific activity is not strategic but the company has a fair competence in it, it should continue to keep this activity in-house as long as it can perform at a competitive level. In the last case, when an activity is strategic for the company but its competence is relatively low, it should seek long-term collaboration or partnerships. Examples here are the alliances that large electronic manufacturers have established with key component suppliers (such as IBM with Intel); and the alliances that Intel and Samsung have established with equipment manufacturers (e.g. ASML).

Apparently, as the case at the beginning of this chapter illustrates, there are risks and disadvantages associated with outsourcing. These may relate to loss of control, loss of critical skills and knowledge, loss of intellectual property, loss of security, service quality drops, increases in cost and loss of innovative capability. As a company moves some or a larger part of its assets to a specialist service provider, it must realize that its risk profile will dramatically change. In general, its ways of working with the external provider will need to be much more disciplined and organized than when working with internal departments. Working with internal departments allows, in general, for much more flexibility than working with an external partner, who will often refer to the contractual agreements made when special requests are made by the customer or when the customer wants to initiate changes in its requirements. One of the most important challenges in dealing with outsourcing is how to deal with the change in the balance of power that usually turns in the favour of the service provider. We will discuss this aspect later in this chapter.

Table 4.2 provides a general picture of the advantages and disadvantages of outsourcing.

Table 4.2 Advantages and disadvantages of outsourcing

Advantages	Disadvantages
Freeing up of cash: investments can be concentrated on core activities	Increased dependence on suppliers
Optimal usage of knowledge, equipment and experience of third party	Continuous follow-up and monitoring of the supplier relationship is necessary
Increased flexibility: fluctuations in the workload can more easily be absorbed	Risks of communication and organizational problems during the transfer of activities to a third party
Outsourcing leads to easier and more focused primary processes in the organization	Risk of leakage of confidential information
Input through an independent party's point of view, which reduces the risks of introvert shortsightedness in the organization	Depending on balance of power between parties, inability to execute contractual performance incentives and penalties
	Risk of losing essential strategic knowledge

SUCCESS OF OUTSOURCING AS A BUSINESS STRATEGY

It is difficult to be able to determine the success of outsourcing as a business strategy because the external factors in the before and after situations may have significantly changed. Determining the success of outsourcing in terms of cost savings is not an easy task because often it is almost impossible to determine the costs of the function/activity before it was outsourced due to all kinds of hidden costs that are involved. When outsourcing has been selected as a favourable business strategy due to reasons other than obtaining cost savings, it is even more difficult to assess the success of outsourcing in an objective manner. Nevertheless, success rates may be derived from research investigating stakeholder satisfaction with outsourcing outcomes and relationships. Recent research on IT outsourcing found that around 40 per cent of such projects fail (refer to Delen et al., 2016). Deloitte (2014) reported that 49 per cent of companies who had outsourced part of their business processes complained about the reactive attitude of their outsourcing partners, whereas 48 per cent of the companies complained about the poor service quality that they gained from these partners. These and other studies show that failure rates of outsourcing projects seem relatively high. Nevertheless, both in the United States and in Europe, outsourcing as a business strategy since the late 2000s has become very popular.

The outsourcing process

This paragraph describes the basics of the **outsourcing process**. First, the outsourcing process and its importance are introduced. Then the three different phases of the outsourcing process will be discussed. In the next paragraph, the critical success factors derived from the discussion on the outsourcing process and other literature will be presented.

The outsourcing process can be structured around different elements. Most authors would agree that essentially three distinct phases can be identified: a strategic phase (why, what, who?), a transition phase (how?) and an operation phase (how to manage?).

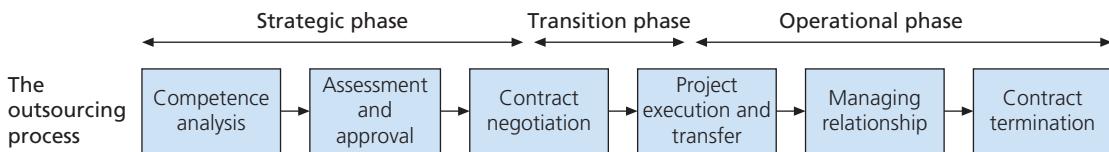
Outsourcing process

The outsourcing process can be structured around essentially three distinct phases: a strategic phase (why, what, who?), a transition phase (how?) and an operation phase (how to manage?).

Based upon these phases, Momme and Hvolby (2002) present a framework that identifies six generic steps of outsourcing that provide guidance to the outsourcing process (refer to Figure 4.2).

Figure 4.2 The outsourcing process

Source: Adapted from Momme and Hvolby (2002, p. 71), An Outsourcing Framework: Action Research in the Heavy Industry Sector, European Journal of Purchasing & Supply Management, Volume 8, Issue 4. Reproduced with permission.



Transaction cost approach The transaction cost approach is based on the idea of finding a governance structure to arrive at the lowest cost possible for each transaction and comparing whether to perform an activity internally or outsource the activity in the market.

Lump sum contract Contract is based upon a fixed price (per period) for executing the project or a certain activity.

Core competence approach The core competence approach is based on the assumption that in order to create a sustainable competitive advantage, a company should concentrate its resources on a set of core competencies where it can achieve definable pre-eminence and provide a unique value for the customer. Therefore, it should outsource all other activities.

STRATEGIC PHASE

During the strategic phase three essential questions have to be answered by a firm. The first question relates to the objective of the firm with regard to its intent to outsource a certain activity. The next question that has to be answered is what activities are considered for outsourcing. The final question is what qualifications a supplier should be able to meet in order to qualify as a potential future partner for providing the activity concerned.

Companies may have, as we saw earlier, many motives for outsourcing. Whatever the reason, the decision to outsource should support and enable the company's overall strategy. Motives that are cited most are: (1) focus on core competence; (2) focus on cost efficiency/effectiveness; and (3) focus on improving customer services. This implies that the strategy of the outsourcing company should be aligned with these three motives and that the outsourced activities should contribute to this strategy.

The second question relates to *what* should be outsourced. In other words: which activities or which function are candidates for outsourcing? In the literature two important approaches are used to answer this question, i.e. the **transaction cost approach** and the core competence approach.

The final question to be discussed is that of to whom the function should be outsourced. After the decision to outsource has been made, it is essential the right supplier be chosen. A supplier has to be selected that has the necessary technical and managerial capabilities to deliver the expected and required level of performance. Also, the supplier should be able to understand and be committed to these requirements.

The supplier selection process is key to the success of the buyer-supplier relationship. Momme and Hvolby (2002) present a four-phase model (Figure 4.3). This model provides some guidance on how to identify, evaluate and select outsourcing candidates and therefore is an appropriate tool to use in the strategic phase (refer to Figure 4.3, phases 1 and 2). It also gives a brief guidance for the transition (phases 2 and 3) and the operational phase (phase 4), but needs to be elaborated for that purpose. The selection process to find the best partner for outsourcing equals what we discussed earlier elsewhere on supplier selection. Due to the fact that this new task-buying situation is subject to large risk and uncertainty, each step in the supplier selection process is more elaborate. Whereas the fact that many business functions are affected it is more multidisciplinary in nature and as a result decision-making is more complex and difficult, which is why outsourcing processes and projects should be managed by business managers rather than procurement managers.

Theory snapshot 4.2

Transaction cost economics (TCE)

The transaction cost approach is based upon the idea of finding a governance structure to arrive at the lowest cost possible for each transaction that is made and comparing whether to perform an activity internally or outsource the activity in the market. Williamson (1981, 1983, 1985) is one of the founders of the transaction costs theory. He defines transaction costs as the costs that are associated with an exchange between two parties. The assumption underlying the transaction costs approach is that an exchange with an external party is based on a contract. The (potential) costs associated with establishing, monitoring and enforcing the contract as well as the costs associated with managing the relationship with the external party are all considered to be part of the transaction costs as well as the costs associated with the transaction itself. Therefore, all these costs should be taken into account when deciding between make or buy options.

The level of the transaction costs depends upon three important factors. These factors are the frequency of the transaction, the level of the transaction-specific investments and the external and internal uncertainty. The frequency of the transaction is an important factor because the more frequent exchanges occur between partners, the higher the total costs that are involved. The level of the transaction-specific investments also determines the level of transaction costs because transaction-specific investments are investments that are more or less unique to a specific buyer-supplier relationship. Examples are investments in specific supplier tooling (such as moulds and dies) by a large car manufacturer and the change costs involved such as when choosing a new accountant (internal staff need to become accustomed to the new accountant, the new accountant needs to be thoroughly briefed to become acquainted with the company, etc.).

These examples show that investments are made in assets as well as in human capital. Obviously the greater these investments, the higher the transaction costs will be. The last factor that determines the transaction costs is the external and internal

uncertainty. Uncertainty is a usual parameter in the decision-making process. It can be defined as the inability to predict contingencies that may occur. The higher these uncertainties, the more slack a supplier wants to have in presenting their proposal and rates and the more difficult it will be to make a fixed price or **lump sum contract** that deals with all uncertainties beforehand. Therefore, the higher the level of uncertainty, the higher the transaction costs will be.

The other approach on which an outsourcing decision can be based is the **core competence approach**. This theory is based, among others, on the work of Quinn and Hilmer (1994). The core competence approach is based on the assumption that in order to create a sustainable competitive advantage, a company should 'concentrate its resources on a set of core competencies where it can achieve definable pre-eminence and provide a unique value for customers ... [hence, it should] strategically outsource all other activities' (Quinn and Hilmer, 1994, p. 43). The important question to be answered here is: what are the firm's core competencies? Quinn and Hilmer (1994) suggest that characteristics of core competencies are:

- skills or knowledge sets, not products or functions
- flexible, long-term platforms that are capable of adaptation or evolution
- limited in number: generally, two or three
- unique sources of leverage in the value chain
- areas where the company can dominate
- elements important to the customer in the long run
- embedded in the organization's systems

The competencies that satisfy these requirements are the core competencies of the firm and provide the firm with its long-term competitive advantage. These competencies must be closely protected and are not to be outsourced. All other activities should be sourced from the market if these markets are totally reliable and efficient.

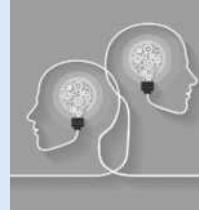
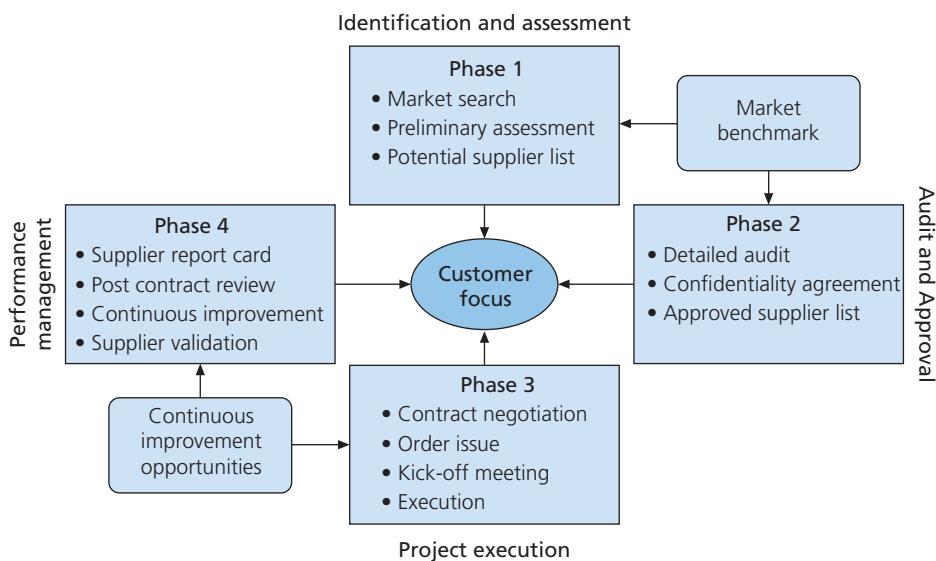


Figure 4.3 Four-phase strategic outsourcing model

Source: Momme and Hvolby (2002, p. 191), An Outsourcing Framework: Action Research in the Heavy Industry Sector, European Journal of Purchasing & Supply Management, Volume 8, Issue 4. Reproduced with permission.



THE TRANSITION PHASE

The transition phase consists of the contract negotiation and the project execution and transfer. The most important issue in the contract negotiations is the contract itself. Also, it is important to keep in mind that the contract negotiation of an outsourcing agreement is often the start of a long-term relationship, so not only should the contractual issues be dealt with but the people issues and the importance of a sound and co-operative relationship should be covered as well.

The contract is the legal basis for the relationship and is therefore one of the key documents in the outsourcing process. It allows both organizations to maximize the rewards of the relationship, while minimizing the risk. This makes the outsourcing contract a key success factor for the establishment of a strategic outsourcing relationship. Usually the contract refers to the business case that has been prepared between the parties involved. The business case explains the background of the project; the objectives of the parties involved; what needs to be delivered by the outsourcing partner and how that will be delivered; the migration plan to change from the current to the new situation; and the benefits, cost and risks for the parties involved. The contract and the type of contract should reflect the business case (the goal of the co-operation) the two parties have and should be reasonable to both parties.

There are different types of contracts. The type chosen depends upon the characteristics and the scope of the contract, and the function or activities that are outsourced. In general, performance contracts are preferred. A popular type of contract that is used in outsourcing deals is the Service Level Agreement (SLA). An SLA is a special type of contract: it describes the performance to be delivered by the service provider. KPIs that monitor cost, service quality, response rates and customer satisfaction, are agreed by both parties. Payment is based upon specific rates or a fixed price plus a bonus or minus a penalty based upon actual performance versus targeted performance. In general, an SLA should: (1) reflect the overall business goals, (2) be objective, (3) be measurable and

(4) be comparable against pre-established criteria. The SLA should be a living document and be able to change when business conditions or client requirements change. Also, the contract should specify the required actions if the service levels are not achieved.

As has been argued before, the type of contract has a great impact on the success of the joint operations. One of the key issues in the contract phase is whether to use incentives and penalties in a contract. The idea of using incentives and penalties in a contract is generally supported and seen as a critical success factor for the output of an outsourcing agreement. Incentives enable the provider to work as a partner and the partners to work together towards joint goals. They also enable both parties to profit from successful achievement of the goals. Incentives motivate the service provider to perform beyond targets. The use of incentives, however, is only possible when both parties agree on the goals in the contract, the level of service that has to be provided and the performance measurement system.

The type of contract and the use of incentives is just one of the many issues to be discussed in the contract negotiations. There are many other ‘ingredients’ in an outsourcing agreement. They include the following:

- Scope of services. The description of the services that will be provided.
- Term of the agreement. The duration of the contract, which depends on the objective of the outsourcer. Usually mid-term contracts are used to allow the outsourcing partner to recoup their investments.
- Rates, fees, incentives. The pricing and fee structure should be clear to both parties.
- Termination plan. When the relationship is terminated, it should be executed in a fair and equitable manner, without resulting in disruption of service. Also, items such as ownership of data, intellectual property and so on should be agreed upon beforehand.
- Conflict resolution. It is very important to manage the relationship in such a way that conflicts are resolved in a co-operative manner. In the contract an informal conflict resolution method can be arranged and a formal dispute resolution method should also be arranged.
- Communication. A communication plan is a key document of the contract. It should contain guidelines on reporting, staff communication, periodic meetings, etc.
- Management and control. The parties should develop procedures for managing and performing the services. This part of the contract can contain many different subjects, such as a manual for day-to-day operations, guidelines for subcontractors, the supplier’s obligation to work with customer’s technical standards, etc. Next, this document should contain a section on how changes in the contract should be handled. Further the mandate, the degree to which the supplier is empowered, should be defined.
- Other. A contract can contain many more items than those discussed here. These include warranty, confidentiality, audit rights, transfer of assets, escalation clauses, etc.

After the contract is signed and all the issues in the preceding phases have been dealt with, the outsourced function has to be transferred to the supplier. The key activities in this phase are establishing the basis for supplier integration, defining the workflow interfaces and adapting the organization to the transfer of activities to the supplier.

The outsourcing transition can be a very complex event. The transfer should be conducted using project management principles. This approach includes the assignment of a dedicated project manager by both the customer and the service provider.

The project transition manager should in fact manage all phases of the implementation and would act as the central point of contact. Furthermore, both parties should oversee the preparation of a sound transition plan. This plan is a document that identifies the steps that must be taken to accomplish a successful transition. A project timeline needs to be set up, with designated milestones that need to be formally signed off. The last phase before going live is a test phase in which the supplier's delivery is tested against the contract requirements. Obviously, an important task for the outsourcing company is to provide training and support for the supplier's staff if necessary.

THE OPERATIONAL PHASE

After the transition phase has been completed successfully, the operational phase of the outsourcing process starts. This operational phase consists of two processes: (1) managing the relationship and (2) contract termination.

Managing the buyer-supplier relationship management is one of, if not *the*, critical stage in the outsourcing relationship. Achieving the goal of the outsourcing relationship is impossible without close co-operation between the parties involved. When the relationship is not properly managed, the conditions for close co-operation will not be present and the outcome of the outsourcing relationship will be far from optimal.

Many researchers have published on the characteristics of a successful buyer-supplier relationship. The top seven of these include the factors of trust, commitment, consistency, open communication, flexibility, team approach and shared objectives. McQuiston (2001) proposes a conceptual model for building and maintaining the relationship between business partners. The author identifies six core values as being critical to the success of these relationships. These six core values are supported by four supporting factors. The parameters in this conceptual model are consistent with other outsourcing literature. The factors found by McQuiston to be core to a successful outsourcing relationship are presented in Table 4.3.

Table 4.3 Core values and supporting factors of an outsourcing relationship

Core values	Supporting factors
Shared goals and objectives	Developing a personal relationship
Mutual dependence	Having professional respect
Open lines for communication	Investment of effort by top management
Concern for the other's profitability	Commitment to continuous improvement
Mutual commitment to customer satisfaction	
Trust	

Successful outsourcing relationships are performance-driven. The performance of the service provider should be measured against the agreed service level on a regular basis and be benchmarked against the performance of other providers in the same business when possible. Both the buyer and the supplier are responsible for this process. But in an outsourcing relationship it has to be clear which party is responsible for what. A common mistake made by a buyer is not only to feel and act responsibly for the measurement process but also to feel and act responsibly for the execution of the contract. Successful outsourcing requires a shift in mind-set from the buying organization. The contract manager, the person responsible for the relationship, should manage paper rather than people. However, they should be careful not to be too detailed in prescribing what is needed, since a primary reason

for outsourcing is to leverage the supplier's greater skills, knowledge basis, investments and processes. If the buyer specifies the job in detail, this will kill innovation and violate the real advantage. Therefore, the buyer must explain *what* it is they want, in terms of services and results, but leave it to the supplier to determine *how* these results are achieved.

The contract review process should be a recurring process in which the outsourcing organization assesses the alternatives to prolonging the relationship with the outsourcing provider. These alternatives are either to replace the current supplier with a new supplier, obviously based on proper research, or bringing the activity or function in-house again. This is only a viable option when the knowledge and capacity in the organization has not been lost and when the business context has changed so much that the decision to outsource this function apparently has to be reviewed.

Risk assessment

Based upon this assessment, it will be clear that managing outsourcing relationships goes far beyond dealing with traditional buyer–seller relationships. Due to the fact that both parties engage in a long-term relationship, many aspects need to be taken into consideration. This is particularly true for those outsourcing relationships in which the parties involved have no history or have not built up experience. In those cases, companies will try to cover all kinds of risks and uncertainties that they perceive to be associated with their future relationship. In such cases, where trust and interpersonal relationships are not present, parties will arrange to deal with these risks and uncertainties via detailed contracts. Of course, the discussions and dealings on these contracts (and the many contract clauses involved) will require a lot of stamina and energy from the executives involved. When legal specialists (lawyers) enter the scene too early, it will appear that negotiations and discussions get lost because the letter of the text of the contract becomes more important than the intention for which it was initiated.

The agency problem is manifest when outsourcing business activities. How to ensure that the service provider (agent) who will take over the company's assets, infrastructure and personnel will act in the company's interests, and how the company will avoid being locked into the relationship with the provider, leaving them with little room to manoeuvre, are vital questions. When outsourcing, the agency problem translates into a number of risks:

- **Technical risk.** This kind of risk is related to the extent to which the provider is able to provide the desired functionality and performance. The degree of risk is related to the question of whether the actual performance to be delivered by the provider can be stated in objective terms. Outsourcing contracts should preferably be based upon an output or outcome specification rather than on an input or process specification. Technical risk is related to the question of how to maintain crucial knowledge in the company over the time that is needed to manage the outsourced activity effectively, how to ensure that the supplier will apply leading edge technology and solutions, and how to ensure that the supplier's staff is capable and remains capable of doing its job.
- **Commercial risk.** This risk is related to uncertainty about the price to be paid and the costs that will be incurred having outsourced the activities to the supplier. Covering this type of risk requires an in-depth knowledge of the cost structure

Technical risk This kind of risk is related to the extent to which the provider is able to provide the desired functionality and performance.

Commercial risk Commercial risk is related to uncertainty about the price to be paid and the costs that will be incurred when having outsourced activities to the supplier.

of the activities that are conducted by the supplier, the key cost drivers and the underlying cost parameters. Commercial risk also relates to the extra cost and allowances that have to be paid when the supplier needs to deviate from the agreed scope of work (allowance for extra work or paying less for less work). Commercial risks can be reduced by using incentives and penalties for above average or below average performance. A final aspect relates to intellectual property (IP): how to prevent sensitive information from leaving the company uncontrolled or, even worse, becoming known to the company's most important competitors. Therefore, a confidentiality agreement will be a necessary part of the outsourcing contract.

Contractual risk

The potential risk of facing losses when the counterparty is not able to fulfill the terms of the contract, or fails to meet contractual obligations.

- **Contractual risks.** Outsourcing agreements are complex and involve a lot of risks and uncertainty. In managing those risks companies can choose between behavioural-based contracts and outcome-based contracts. In order to align the service provider's interest with the company's interests, outcome or performance-based contracts are recommended. Does the contract describe in sufficient detail the performance that is expected from the supplier? Do the performance indicators that have been defined sufficiently cover what needs to be accomplished by the supplier? Have sufficient arrangements been made about: (1) the scope of work and/or (2) the resources to be used by the supplier? Should things go wrong, can the penalties actually be enforced in the relationship with the supplier, without destroying the relationship or without putting the service delivery by the supplier in immediate danger? Are there sufficient arrangements for dealing with subcontracting issues?
- **Performance risks.** These risks relate to the chance that the supplier is not capable of doing the job it was hired for. Does the supplier have sufficient capacity and flexibility to meet fluctuating requirements? Does the company have sufficient capacity and information to trace and track the supplier's operational processes? What if the supplier is not able to meet the agreed targets on service levels, quality and cost?

The risks that are described here are related to the change in the balance of power between the client (buyer) and the provider (supplier). As a result of outsourcing, the client becomes much more dependent on the provider, who after the initial period (when people, assets and knowledge have gone over to them) may find themselves in a more powerful position (Arruñada & Vázquez, 2006). In deciding about outsourcing, therefore, this dependency and the associated risks need to be carefully balanced against the anticipated cost savings. Lenovo, the Chinese manufacturer of computers and electronics who took over IBM's PC business some years ago, may serve as an example here (refer to Memo 4.3).

Before coming to an agreement with an outsourcing partner, a careful risk analysis must be made. After the objectives and the deliverables of the services to be provided by the provider have been defined, it is useful to analyze all factors that may impede the realization of the agreement and deliverables. These risk factors should be assessed on the basis of two criteria: (1) the negative impact on the company's financial performance or operations and (2) the likelihood with which the risk factor would probably occur. Based on these two criteria, a **risk assessment matrix** can be developed (refer to Figure 4.4) that allows the development of specific risk mitigation strategies and activities per risk factor. Of course, most efforts should be concentrated on those risk factors that would represent both a high negative impact on the company's performance and could occur with high probability.

Risk assessment matrix

Risks are assessed based on two criteria: (1) the negative impact on the company's financial performance or operations and (2) the likelihood with which the risk factor would probably occur.

Memo 4.3

IBM and Lenovo: from outsourcing to a partnership relationship

In 1982 IBM launched its first PC based on Microsoft's operating platform, setting the stage for a new industry. The PC was developed in-house and initially production was done by IBM internally. As the industry matured and became global, price levels and margins on IBM PCs eroded. As a result, IBM decided to outsource the manufacturing of its PCs and laptops to Lenovo, one of the first electronics contract manufacturers in China. In 2005, IBM made history again by selling all its PC business to Lenovo, who now had grown into a strong global player and China's leading computer maker. It was one of the first major mergers between a US company and a Chinese one. It allowed IBM to move away from the manufacturing of PCs into transforming into a global services leader.

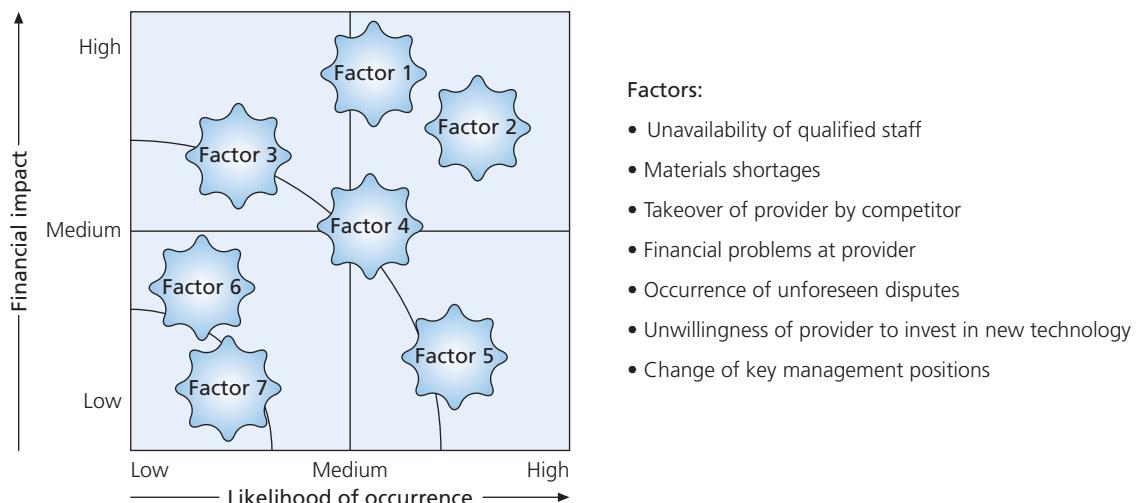
A combination of their complementary core competencies would lead to joint value creation in the PC business and services. Lenovo's hardware and assembly skills complemented with IBM services. Software and associated computing products would result in joint solutions to manage the customer's complete device life-cycle, which could not have been reached separately. According to IBM, the partnership

accelerates the time-to-value and reduces the management costs and overall risk through closer collaboration.

In order to deal with the hidden danger in outsourcing – the loss of intellectual property (IP) – IBM and Lenovo see each other rather as partners with complementary paths. They are innovating together in joint innovation teams and aim to deliver holistic end-to-end computing solutions to the customer. IBM is marketing and selling Lenovo's hardware through IBM Global Services and providing technical support, while Lenovo through IBM collaboratively sells its products to customers under the name 'Delivered by IBM'. This creates a compelling long-term partnership for both sides. As IBM and Lenovo were established collaboration partners for multiple years before the sale, both parties were already familiar with each other's way of working, which reduced the collaboration problems such as trust issues. The combined leadership between IBM and Lenovo has created added value to both consumers and the companies themselves, which would have been much more difficult if both companies had still operated independently.



Figure 4.4 Risk assessment matrix: systematic analysis of risk factors



As business-to-business relationships may change over time and the business scene may change rapidly, this analysis and the resulting fall-back scenarios should be regularly reviewed and discussed. In this way, unpleasant surprises in the relationship with the service provider may be prevented.

Many authors over time have pointed out that in dealing with these risks, detailed contracts will not solve the problem. Frequently, the importance of trust and partnership in the relationship are stressed. Developing trust and an atmosphere of partnership, however, is easier said than done. It is our observation that the level of trust seems to be conversely related to the size and complexity of the contract: the more suspicious parties are, the higher the need for an all-encompassing legal contract. The more mature the relationship between the parties, the less the need to put everything in writing. Therefore, we feel that the best chances for successful outsourcing relationships are present between parties that have already been dealing with each other for a long time in other business areas or activities. The less familiar buyer and seller are, the more they should refrain from complex outsourcing deals. Having historical bonds and a good personal relationship are necessary but not sufficient conditions for making outsourcing partnerships a success. Rather, a careful strategic positioning and a sound balance of power between the parties involved seem to be just as important.

Critical success factors of outsourcing

At the end of this chapter we provide an overview of the most important critical success factors that should be considered prior to engaging in an outsourcing relationship with an external provider. Here, we have taken the ideas that were originally suggested by the Outsourcing Institute in 2000 (www.outsourcing.com) as a point of departure for our discussion. The Institute considers the following factors as critical for success in outsourcing:

- Understanding company goals and objectives. The motive to start with an outsourcing process has to be in line with the overall business strategy. When a company has decided to outsource part of its manufacturing, since it considered this activity as non-core to its business, it should not reconsider this decision when going through an economic recession.
- A strategic vision and plan. Outsourcing should not be conducted to solve just an operational problem, e.g. solving people issues and capacity problems related to IT. The activity or function that is a candidate for outsourcing should be assessed thoroughly and the potential benefits, risks and resistance to be met from the internal organization should be analyzed beforehand.
- Selecting the right vendor. An exhaustive supplier selection process is recommended. The future provider should be selected on the basis of a cohesive and consistent set of criteria related to the supplier's technical and managerial capabilities, as well as the extent to which future visions and strategies and cultural aspects at different levels of the organization are shared.
- A properly structured contract. The contract that is negotiated should be fair for both parties, the basis of it being an SLA that reflects the overall goals of the relationship. Preferably the performance to be delivered by the provider needs to be translated in a limited set of objective, measurable performance indicators that

are comparable over time. The contract should support the idea of going for a long-term relationship. The goal of the contract therefore should not be a win–lose, but a win–win situation. All the aspects of the relationship such as procedures, communication, termination, etc. should be set out in the contract.

- Open communication with the individual groups involved. A communication structure should require frequent interaction at regular intervals at different levels of the organizations involved. Also, reporting schedules should be agreed upon from both sides. Both parties should agree on joint training programmes in order to make everyone aware of the new environment and new ways of running the processes involved.
- On-going management of the relationship. Performance incentives should be considered in order to motivate the supplier to meet and exceed expectations. Contract management is vital to the success of the outsourcing agreement.
- Senior executive support and involvement. Since outsourcing usually relates to complex decision-making, large sums of money and a long-term commitment from the company, top management support is crucial for making it happen.
- Careful attention to personnel issues. Outsourcing will affect the ways of working and routines of all people involved. Jobs will change or even disappear. New tasks will emerge. It is therefore important that staff be informed of and prepared on a timely basis for what management expects from them. Unexpected surprises may trigger negative emotions and resistance from the people involved in the activity that will be outsourced. Management of people issues is therefore crucial.

One of the most important factors for the success of outsourcing is also the way the company is strategically positioned vis-à-vis its future service provider. In our view, a company should avoid becoming totally dependent on its service provider. If so, the outsourcing project may backfire. It may show that when people, assets and knowledge have been transferred to the provider, the provider will after some time start discussions on raising prices and rates, or slowing down its services in order to force concessions from its customer. This is why a large number of outsourcing projects fail in the end. The essence of making sound outsourcing decisions lies in a careful analysis of the expected cost economies and operational benefits against the change in supply risk profile.

Summary

This chapter has shown that outsourcing as a business strategy has become quite popular in many industries, not only in the United States but also in Europe and Asia. From the type of activities that are outsourced it can be derived that the interest in outsourcing as a business strategy is growing, as nowadays, apart from individual activities, complete business functions (e.g. IT management, integrated facility management) are being outsourced. Based upon its popularity, it might be concluded that outsourcing is a successful business strategy. However, as we have seen in this chapter, outsourcing in practice suffers from many problems that prevent its success. There are many reasons for a company to outsource. Most companies engage in outsourcing for cost reasons and, next, to create more focus. Based upon studies by consultants in this field, outsourcing leads to mixed results, which is why we feel it should be approached with great caution and care.

Outsourcing relates to a strategy whereby a company decides to move an activity that was conducted in-house to an outside provider. An important characteristic is that when doing so, it transfers important resources (in terms of assets, knowledge and people) to its future service provider. As a result, outsourcing decision-making is surrounded by great uncertainty and complexity. Offshoring is a similar strategy to outsourcing. However, it usually relates to situations in which the provider is located in a low-cost country.

Although it is difficult to determine the success of outsourcing, it is still possible to determine the factors that influence its outcomes. A careful outsourcing process is crucial for its success. As we have seen, this process consists of three important phases, i.e. the strategic, transition and operational phases. In the strategic phase the outsourcing decision and supplier selection process are key issues to be dealt with. In the transition phase, deciding on the proper type of contract and negotiating the final contract conditions are key elements. Just as with the transition of people and resources from the buyer to the external provider and the integration of operational and managerial processes. During the operational phase obtaining superior service delivery and management of the relationship are key issues. The most important overall success factors were identified from these three phases.

As we have argued, it is important to align the outsourcing strategy with the overall business strategy. At this stage expectations and objectives to be met by the outsourcing project need to be defined in detail upfront. First, the issue of what activities should be considered non-core to the company needs to be addressed. Next, potential cost savings through outsourcing non-core activities or business functions should be validated using a transaction cost analysis approach. Then, a sourcing strategy proposal can be prepared outlining what activities should be outsourced and what performance should be expected from an external provider. Based upon this information the supply market should be thoroughly analyzed to find the partner that best meets all qualifications. Apart from technical competencies, the vision and strategy, management style and organizational culture should fit with those of the outsourced company. Since trust is an important element, providers should be favoured with whom the company already has a relationship. The basis of the future relationship consists of a detailed SLA in which the most important key performance indicators are defined, and which are used to validate and monitor actual supplier performance. Penalties and incentives may be part of this contract to stimulate the supplier to exceed expectations. It is the role of the contract manager to monitor progress based upon this contract and to regularly review whether actual performance levels are met by the supplier. In this way, the contract manager should support the project manager, who primarily deals with operational and people issues.

As a result of outsourcing, the traditional balance of power between the outsourcing company and its provider may change dramatically. The customer (buyer) will become much more dependent on its provider (supplier), which is why a careful risk assessment should be part of the preparation. We have differentiated between technical risk, commercial risk, contract risk and performance risk, which are all affected when entering into a complex outsourcing relationship. These analyses should result in a picture of how dependent and vulnerable the company will be vis-à-vis its future partner. This picture could be made using the risk assessment matrix that was presented in this chapter. In all cases the company should avoid too great a dependency and vulnerability, which is why outsourcing should be avoided in some cases.

Assignments

- 4.1 In business many terms are used to describe procurement and contracting activities. What would you consider to be the most important differences between procurement, subcontracting and outsourcing? Discuss.
- 4.2 Looking at the case study at the start of this chapter, what went wrong at the telecom company? What would the telecom company need to do to gain more control over its provider?
- 4.3 What would you consider to be the most important elements of an outsourcing contract? Provide at least ten items that you would need to arrange apart from the usual contract terms and conditions (such as price, delivery or quality).
- 4.4 When outsourcing an activity that was conducted in-house to another firm, what kind of resistance would you most likely meet and what would be the consequences of this resistance? What would you consider to be the role of the procurement manager and the contract manager?
- 4.5 As a result of outsourcing, the outsourcing company would become more dependent on the supplier. What could a company do in order not to become too dependent on a specific supplier? What would you recommend to the outsourcing company to be able to exert some degree of control over its supplier?

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5

Category sourcing: developing effective sourcing strategies

Learning objectives

After studying this chapter you should understand the following:

- How to identify the different elements of a category management plan.
- What it takes to develop a sourcing strategy.
- How to develop differentiated supplier strategies to support the company's overall product/market and business strategies.
- How to assemble a cross-functional sourcing team.
- How to identify key success factors for successful implementation of sourcing strategies.

Introduction

As companies try to shift their focus towards innovation, sustainability, globalization and profitable growth, the implication for procurement professionals is clear: expand performance targets beyond cost reduction and provide in supplier support to help realize the company's strategic business objectives. Corporate cost reduction programmes can only offer so many savings using the traditional sourcing methodologies that became popular in the late 1980s and 1990s. Sourcing managers still use them successfully to rationalize suppliers, leverage buying power, drive down materials prices and even improve supplier performance against what has been contractually arranged. This became especially clear during the COVID-19 pandemic. Following the falling demand for civil aerospace engines resulting from the COVID-19 crisis, Rolls Royce sent a letter to most of its aerospace suppliers demanding price cuts of 5–15 per cent (Hollinger, 2020). They threatened to withdraw supplier volumes if the supplier didn't cut its prices. Another example is described in the Tesla case following.

The Tesla example shows the limits of a traditional sourcing methodology. It is just not sufficient to specify your lithium requirements, search the market, select your supplier(s) and negotiate your best price. A more strategic and long-term approach towards managing this spend category seems necessary, one that takes multiple demand and supply factors into consideration, such as requirements, business priorities, supply market dynamics, supplier strategy, supply chain processes, total-cost-of-ownership, supply risks and value.

Case study

Tesla's sourcing challenge for lithium

In 2016 the US-based electric vehicle (EV) manufacturer Tesla was expecting to produce 500,000 EVs by 2020. Each of these EVs needs a lithium-ion battery to power the electric motor. These batteries cost between US\$7000 and US\$20,000, making it by far the most expensive cost item of a Tesla car. Therefore, instead of buying batteries, Tesla decided to make them in its own battery factory (i.e. Gigafactory). Tesla expects that by producing its own batteries it can boost innovation, secure quality and reduce production costs by more than 30 per cent, which is crucial for the global mass-market uptake of EVs.

An important raw material for producing batteries is lithium (a light weight material that some refer to as 'white petroleum'). Tesla's total lithium demand, at full production in 2020, was estimated at about 8000 tons per year. A typical US\$10,000 battery for an EV contains less than US\$100 worth of lithium, so lithium makes up less than 1 per cent of the total battery cost. In 2016, Tesla's CEO Elon Musk said that to meet his target of 500,000 EVs a year in 2020, 'Tesla would basically need to absorb the entire world's lithium-ion production'. At that time, Tesla had not yet announced any lithium supply deals with big producers, leaving it unclear where it would source the lithium it needed to start producing batteries.

Most of the global lithium supply comes from a few huge conglomerates in Chile, Argentina, Bolivia and Australia (i.e. oligopolistic market). Due to growth in demand for batteries, the global lithium market was entering a period of shortages, while at the time no new suppliers were envisaged to enter the market. At the same time, battery factories currently being built in China were expected to increase demand for lithium even further. Lithium availability was probably the biggest challenge facing Tesla's Gigafactory. It was also the only area of the EV supply chain where Tesla did not have full ownership and control.

Unlike gold, copper or many other commodities, lithium doesn't have a spot market and isn't traded on a global exchange market. It's a rather immature market where prices are negotiated individually through contracts between individual buyers and sellers. In 2010, the average market price per ton was US\$5180, increasing to US\$6800 per ton in 2013 and falling back to US\$6600 per ton in 2014. Compared with the average price in 2015, the lithium prices rose 47 per cent in the first quarter of 2016. Elon Musk said the company would seek to source lithium from a supplier in Nevada (the only supplier of this material in the United States and producing about 870 tons). Further, Musk's sourcing plan was to leverage the Tesla name by signing conditional contracts at unrealistically low prices with new start-up suppliers who have never produced lithium before. Two of these suppliers announced supply deals with Tesla, but neither was expected to produce substantial amounts of lithium before 2020. That would mean Tesla would be short of the lithium it needed when its Gigafactory started operating – or be forced to sign supply agreements with one of the three biggest suppliers, most likely against much higher prices.

The three biggest lithium suppliers in the world, although in continuous sourcing discussions with many of the leading electric vehicle manufacturers, including Tesla, were not willing to supply Tesla at its requested target price. As a result, the introduction of the Tesla 3 model had to be delayed. It is clear that Tesla has a sourcing issue that needs to be solved quickly. What sourcing strategy would support Tesla's business priorities best? Time will tell...

Why do companies categorize their spend and develop specific category plans for each category? What do they want to accomplish with this approach? What is a sourcing strategy and what does it take to develop and implement it? What is category management and how does it relate to strategic sourcing? What role do procurement professionals have in category management? What is their task in sourcing? These are some of the questions that are addressed in this chapter. It will become clear that when adopted properly, companies can significantly improve their power position in supply chains and realize substantial cost savings. Also, category management may result in much more constructive relationships with suppliers leading to new solutions and products and greater supply chain efficiencies.

Reasons underlying cost-savings potential in procurement

The cost-reduction programmes that have been set up over the past years by many large companies have resulted, almost without exception, in large procurement cost savings. Impressive savings have not only been reported in production-related buying, but most certainly also in non-production-related buying, notwithstanding the often long-established and highly valued relationships with the suppliers involved. How were these cost savings realized? What activities generated them? What reasons may explain the slack that apparently exists in the prices paid for procured materials and services? In general, most manufacturers and suppliers are reluctant to share this type of information with the outside world. Based on experiences with numerous cost-reduction programmes, the following are reasons why slack in materials costs and prices may exist:

- Traditional procurement. In many companies, procurement is still managed in a traditional and transactional way (i.e. stage 1 or 2 in the procurement development model). This means that buyers are only involved late, if at all, in the procurement decision-making process and the company actually deals with a fixed group of familiar suppliers. Specific policies on procurement or on how to deal with suppliers are hardly developed. If available, procurement plans usually are not very ambitious. It might be that products are purchased for years without any knowledge of the underlying cost structure of the suppliers involved. Supplier representatives have free access to the company. In such a situation, where an appropriate governance on procurement is lacking, much benefit can be gained from adopting a more professional way of working with suppliers.
- Continuous and relentless competitive bidding among a fixed group of suppliers. In many cases buyers regularly sound out competition among their often-known suppliers by playing them off against each other. The procedure here is that out of five bids, the buyer takes the lowest one, just to start a negotiation with this supplier to reduce the price even more. Then the buyer will go with the lower price to the next supplier and also negotiates, etc. When applied regularly, it is clear that suppliers will anticipate this opportunistic buyer behaviour. First, they probably will not immediately offer their lowest possible price in their quotations, since they will keep some leeway in the 'game' of give and take which will follow. These ritual dances between buyer and supplier usually deliver limited results. Moreover, this process consumes valuable time and energy. Second, when applied among a small group of suppliers, it promotes silent agreements between them and the forming of cartels. In some European countries this type of buying behaviour is widespread, e.g. in the construction industry. It explains why relationships in this industry are usually at 'arm's length' and why collaboration between construction firms and their suppliers often is ill-developed.
- **Overspecification.** In many cases technical specifications for purchased products are defined by R&D and technical departments only, without any input from procurement professionals or suppliers. In most cases this leads to overspecification. In this situation technical requirements are imposed on suppliers which are not necessary for the functionality of the product. An example is the corrugated carton boxes for food products, as used by a large food manufacturer, with full four-colour

Overspecification

A situation in which technical requirements are imposed on suppliers which are not necessary for the functionality of the product.

print, which only serve for transportation to the retailer's distribution centre.

In general, the more specific the requirements for a given product, the fewer suppliers can be found for delivery. In some cases it may even lead to monopolistic supply situations (i.e. single sources), where manufacturers are dependent on one specific supplier. The disadvantages of overspecification are obvious. Products may become unnecessarily expensive. Supplier knowledge for improving or simplifying product design is not used. It limits opportunities for competitive bidding among suppliers. These examples illustrate the need to work with cross-functional teams in dealings with suppliers. However, this often requires a drastic change in the company's organizational culture.

- Price increases in general are automatically passed onto the next in line. This phenomenon is referred to as the 'French fries principle' (refer to Memo 5.1). According to this principle, suppliers will pass on cost increases to their customers, who in turn pass these increases in costs onto their final consumers. This happens not only with materials cost increases but also increases in salaries, social security and other labour costs, which will be passed onto the customer next in line. As examples in the automotive and consumer electronics industries have shown in the past, this practice cannot go on forever. In some cases it has led to customer prices that simply were no longer accepted by consumers, resulting in lost sales and significant financial losses by the companies concerned. Some visionary procurement directors have emphasized that manufacturers and suppliers in fact share one common goal: serving the final consumer in the best way possible. The more products that are sold by the manufacturer, the more business will be generated from suppliers.
- Supplier cartels in (international) supply markets. In spite of the agreements made at EU level and EU competition laws, cartels in most European economies do still exist. In many industries, such as the paper industry, the packaging industry, some construction materials (concrete and bricks), the pharmaceutical industry and some food ingredients (such as sugar and some spices), concentration on supply markets can be very high. There is only a very limited number of players around, which makes it easier to arrange some silent agreements on pricing behaviour and the division of markets. Usually such a situation results in product prices which are not in any way related to the underlying cost structure of the manufacturers. Breaking up a cartel or finding ways to get around a cartel may result in impressive cost savings. However, doing so is difficult and time consuming.
- Suppliers' customer relationship (or key account management) programmes. Many suppliers avoid discussion on how to improve their value proposition to their clients. Rather, they spend time and money on 'customer relationship programmes' trying to influence the preferences of decision-makers in their favour. The activities related to such programs are abundant. Tactics vary from invitations to golf tournaments (IT companies), in-company seminars (banks), product presentations (car manufacturers), research funds (pharmaceutical), and personal gifts and presents, to straightforward bribes (all industries). All these activities aim to influence the personal preferences of decision-makers on 'soft' aspects and to avoid a client testing the products and services in an objective and rational manner. Given the often aggressive and personalized marketing and sales policies of many suppliers, most companies would benefit from a company-wide policy on business ethics and integrity.

These points explain why, in most cases, suppliers have considerable slack in their price setting. The first points are related to the way procurement processes are internally organized. The last points relate to characteristics of the supply market and the sales and marketing activities as applied by suppliers. The next section deals with the issue of how to capture this cost reduction potential.

Memo 5.1

The ‘French fries principle’ in procurement

The passing on of cost increases can best be described by using the price developments of potatoes. A bad potato harvest has direct consequences for the price of a bag of French fries. A good harvest has hardly any consequences.

If the harvest of potatoes in a given year is bad, supply will decrease. However, demand usually stays the same. As a result of the stable demand and shortages of supply, the price per kilo will increase. The price per portion of French fries at the local cafe will also increase.

What happens in the case of an abundant harvest of potatoes the next year? Then supply, of course, will increase, while demand remains the same. As a result

the price for potatoes per kilo will decrease. One would expect that this in turn would result in a price reduction for a portion of French fries. However, in real life this is rarely the case. The idea of this principle is that cost increases, which have been incurred by suppliers, are immediately passed onto the customer. However, materials price reductions and productivity gains are to be kept from the customer in order to improve supplier profitability. In most European economies this phenomenon is very visible as can be seen from the tariffs charged for gas, oil and energy, or for paper and corrugated board, petrol and gasoline, etc.

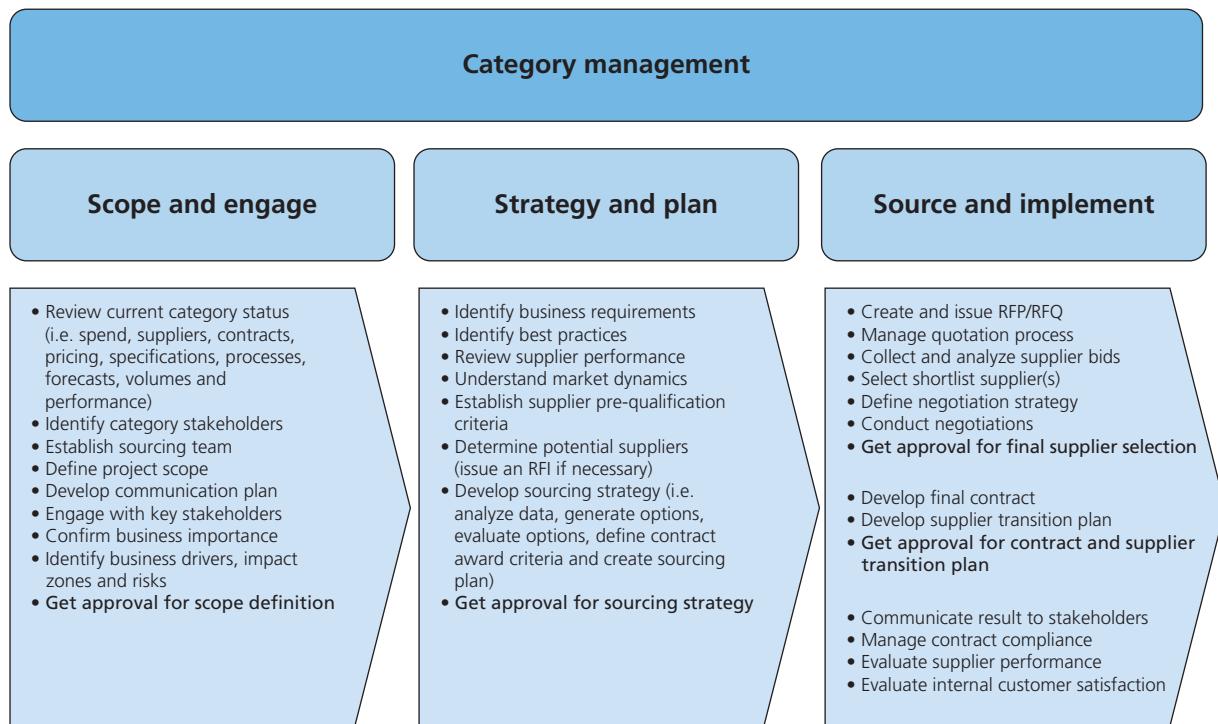


Category management

Category management is a set of practices used to optimally manage spend categories (i.e. sourcing categories) to meet (strategic) business objectives. It guides the content and sequencing of tactical processes such as strategic sourcing and supplier relationship management (SRM) to satisfy both category objectives and (strategic) business objectives. A category is a grouping of products or services that have similar supply, usage and demand characteristics (refer to Figure 5.1).

Category management may be deployed at two levels: the portfolio level (i.e. a collection of related spend categories) versus the product/service category level. At the portfolio level (e.g. all IT related spend or professional services spend) an analysis can be made about the cost savings potential versus the effort that it will take to exploit this potential. Hence, priorities can be made on what spend categories to prioritize and what categories to delay in time. Next, it can be decided whether specific categories will be (re)sourced using an elaborate strategic sourcing methodology or using a quick sourcing methodology (such as an e-auction). Or, when (re)sourcing is not an option, specific SRM programmes (e.g. supplier development) can be set up for certain spend categories.

Category management can also be deployed at the product/services level (for instance, steel components, facility services or office supplies). Category sourcing is

Figure 5.1 Category management framework

part of category management at this level and is all about the use of sourcing processes and techniques to optimally source a category and its constituent commodities/sub-categories, which can be products or services. A commodity (a.k.a. sub-category) is a well-defined product or service bought and sold in a supply market. It is typically characterized by the availability of functionally equivalent substitutes. Just to give an example, the product ‘pencils’ is part of the sub-category ‘office supplies’, which is part of the main category ‘general and administrative spend’, which in itself is part of portfolio indirect procurement. Classifying products and services in this way results in what is commonly called a ‘Category tree’ (refer to Figure 5.2).

Setting priorities for category sourcing

When developing category sourcing strategies, it is recommended that a thorough analysis of the company’s procurement spend by means of a spend cube be undertaken (refer to Figure 1.4, Chapter 1). This allows sourcing managers to gain an idea of the spend per (sub-)category, supplier and internal department. Based on detailed spend data, a category tree is set up (refer to Figure 5.2) which identifies the company’s most important direct and indirect spend categories. Underlying this category tree is a uniform, corporate wide article coding system that assigns a unique code number to every product item or service bought. A spend category is defined as ‘a group of coherent products or services, bought from the supply market that are used by the company to satisfy internal or external customer demands’. Examples include connectors, chemicals, IT, catering, industrial gases, packaging materials, cleaning materials, etc.

Figure 5.2 Category tree for non-production-related procurement spend (example)

IT Infrastructure	Professional services	Office buildings	Office supplies
Mainframes Mid-range systems (W)Intel servers Other professional Hardware Database software Application software Middleware software Security software PCs Monitors Printers Other peripherals Outsourced computer services Telecom hardware (voice) Telecom utilization (voice) Telecom hardware (data) Telecom utilization (data) Mobile telecom services	Financial services Information services Legal services Management consulting services Other professional services	Security services Construction services Technical installations Interior construction Office furniture Catering equipment Household/office removals Parking services Rental/lease buildings Energy Interior decorating	Stationary White paper Copier services Other office equipment
	Marketing and communication	Facility services	HR
	Commercial printed matter Organization printed matter Media/communication Promotional items Sales/promotion events Photography services Translation services Market research Building displays Sponsorship	Waste disposal Food and beverage machines Catering Plant and flower services Cleaning services	Books and magazines Contributions Training and tuition Clothing Medical services Staff facilities Travel Hotels and conferences Representation costs Recruitment services Childcare Transport (staff) Car lease (private) Fuel (private) Temporary staff
	Industry related	Transport and logistics	Not relevant
IT Contracting	Raw materials Packaging	Courier services Storage services Archiving services Packaging Vehicles Fuel (business) Post-handling equipment Secured transport Postal services	Internal invoices via A/P Unknown suppliers Non-procurement spend VAT

Category prioritization matrix Matrix used to classify category sourcing projects based upon two criteria: cost savings potential and ease of implementation.

Before assigning cross-functional sourcing teams to each of these categories, the categories need to be prioritized on the basis of their cost-savings potential and their ease of implementation or feasibility using the **category prioritization matrix** (refer to Figure 5.3). According to this matrix sourcing projects can be grouped into different ‘waves’, allowing sourcing managers to set up short-term sourcing projects aimed at generating savings, in order to build credibility and support within the organization for this kind of initiative. After the first ‘quick wins’ (i.e. low hanging fruit) have been gained, the more difficult sourcing projects can be conducted.

In assessing the cost-savings potential of a certain spend category, procurement managers may use different criteria. Cost-savings potential may be dependent on the following factors:

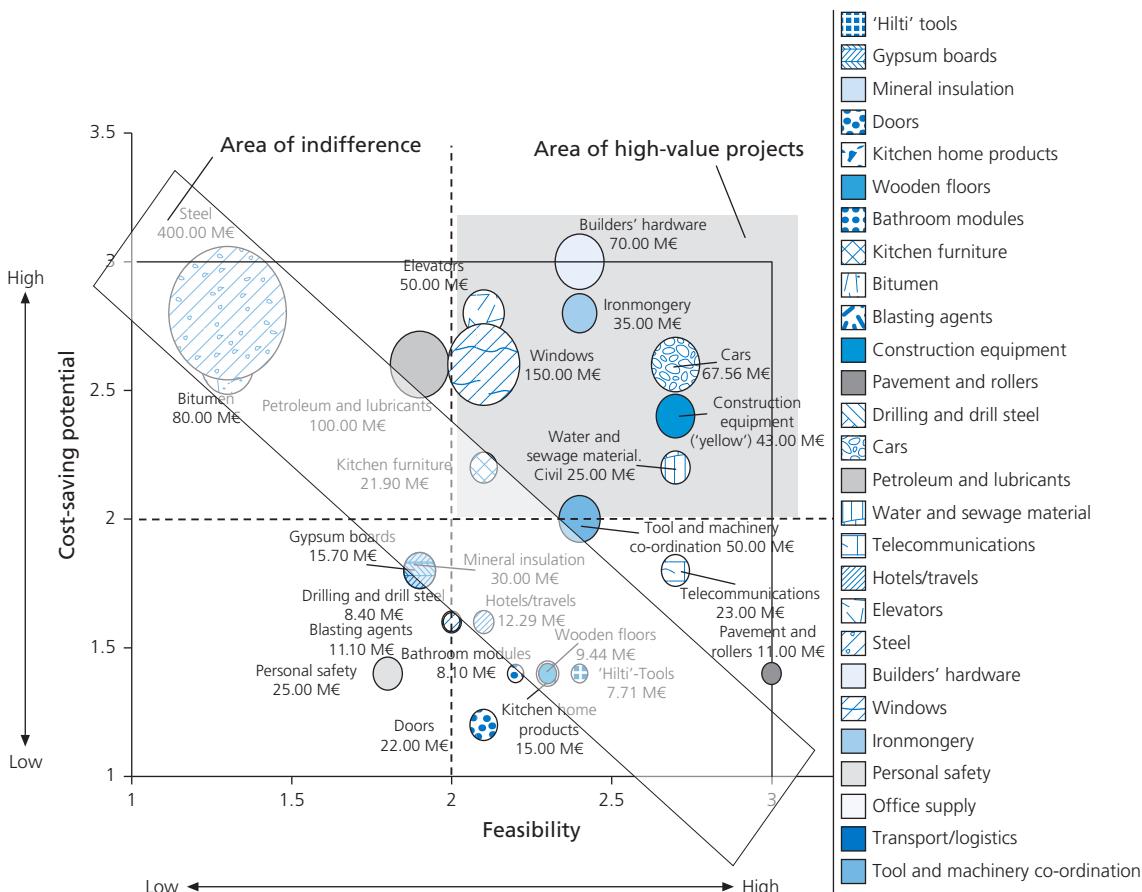
- Customized versus standard (off-the-shelf) specification. If the company can replace a customized solution through a readily available, standard solution, this can result in considerable savings.
- Modular versus component buying. Savings may accrue from buying a total solution from a supplier rather than buying all the individual components and assembling them internally.
- Buyer–supplier dependence. When a buyer is very dependent on a specific supplier and is held captive by a supplier, this may have very negative effects on pricing.

Such risks may be present in a single source situation. This is why most companies as a principle hold that products preferably should not be single sourced.

- Number of suppliers involved in last tender. If only a limited number of suppliers were involved the last time a tender was conducted, expanding the number of potential suppliers may lead to favourable price results.
- Scope of last tender. It may be worthwhile to occasionally expand the scope of the tender procedure beyond the suppliers that are currently known to the company. Including international and even global suppliers in a tender may lead to very favourable pricing.
- Type and age of contract. When contracts have not been renewed for years, doing so may lead to better conditions. Changing the agreement from a pure price and bonus agreement to a more performance-based contract may also provide significant benefits.
- Market price versus cost price differential. Most cost analyses, when conducted for the first time, indicate a wide gap between the supplier's cost price and the price charged to the customer.
- Level of procurement involvement. When procurement professionals have never been involved in a supplier contract, doing so may lead to lower prices due to better specifications, a professional supplier selection and better contracts.

Figure 5.3 Category prioritization matrix

Source: Created from consultation work by authors with Skanska.



Ease of implementation may be decided by totally different factors. One factor is the degree of resistance that can be expected from internal stakeholders when changing specifications or suppliers. The other is the internal technical expertise that is, or isn't, present within the company related to the spend category. A third is the supply market knowledge and strategic sourcing expertise that is available within the procurement organization.

Scoping the spend category

Usually, prior to deciding to start a sourcing project and developing a sourcing strategy for a certain spend category, all spend categories are analyzed on both factors: cost-savings potential and ease of implementation. This scoping of the spend category allows the sourcing manager to indicate potential savings and/or value for the business that may be generated in the future and estimate the efforts and investments required to realize them. For core categories with absolute priority to the business and/or that are key from a procurement portfolio analysis perspective, a full and thorough sourcing approach is a must. Basic categories are important to the business but not strategic, sourcing projects will be less elaborate and time-consuming and only take place every two or three years. Finally, light categories are not important to the business and are often small categories with clear improvement potential. Sourcing methodology must be followed, but in a simple and pragmatic way. Based upon this cost-benefit analysis, the procurement manager can decide upon priorities for handling each spend category (i.e. the sourcing calendar/sourcing planning).

Procurement portfolio analysis: principles

When developing sourcing strategies, most sourcing methodologies expect sourcing managers to conduct a procurement portfolio analysis as originally suggested by Kraljic (1983) in his classic article in *Harvard Business Review*. Fundamental to his approach is the idea that since suppliers represent a different interest to the company, procurement managers need to develop differentiated sourcing strategies towards their suppliers and supply markets.

Key in developing sourcing strategies is the issue of influencing the balance of power between the company and its key suppliers. In the authors' view, the balance of power should preferably be in favour of the buyer. If the situation is the reverse, the buying company may suffer from being too dependent on a specific supplier, who may be able to force their requirements and conditions on the buyer. Obviously, when a company is too dependent on a supplier, something should be done to change this situation. In developing effective sourcing strategies, the following questions may be helpful:

- Does the present sourcing strategy support the business strategy and does it meet the long-term requirements? Are opportunities for benefiting from synergies between divisions/business units fully exploited, for example by joint contracting for common materials and services requirements?

- What is the balance of power between the company and its major suppliers? For which products/materials does the company have a dominant position on the supply market and for which products/materials is the company dependent on one single supplier?
- Are the **strategic products** and services sourced from the best-in-class suppliers? To what extent have the spend volumes been evenly spread over several suppliers and geographic regions?
- What percentage of procurement requirements is covered by long-term contracts? What percentage is covered by spot-market transactions or short-term contracts?
- What difficulties or supply chain disruptions can be expected in the near future and how can these problems influence the profit and growth objectives of the company?
- What opportunities exist for collaboration with suppliers with regard to product development, quality improvement, lead-time reduction and cost reduction? Are these opportunities being sufficiently used?

An analysis of the company's procurement spend per category and its supplier base in general will show that the 80–20 rule applies: about 80 per cent of procurement turnover is represented by 20 per cent of the products and suppliers. This analysis is a first step in identifying the company's strategic spend categories and suppliers. It also reveals the often huge number of small expense items and small suppliers (i.e. long tail spend), who in general are responsible for 80 per cent of the company's internal handling costs. After this step, the analysis can be refined using **Kraljic's purchasing portfolio** (1983) approach. In this approach the procurement turnover and the supplier base are analyzed on the basis of two variables:

- Impact on the bottom line of the company. The profit impact of a given sourcing category or item is measured against criteria such as cost of materials, total costs, volume purchased and percentage of total purchase cost. The higher the volume or amount of money involved in the category, the higher the potential financial impact of a cost saving on the company's bottom line.
- Supply risk. This is measured against criteria such as short-term and long-term product availability, number of potential suppliers available, cost of changing a supplier, supply market structure, supply chain complexity, geographic distance, inventory risks and available substitutes. Sourcing a product from just one supplier without an alternative source of supply, in general, will represent a high supply risk. Supply risk is low when a (standard) product can be sourced from many suppliers and switching costs are low.

For reasons of simplicity many sourcing managers use the number of potential suppliers as a main criterion to assess the supply risk of a certain sourcing (sub-)category. In reality, many criteria need to be considered in order to develop a fair idea about this aspect (refer to Table 5.1).

Strategic products

These are high-tech, high-volume products, which are often supplied at customer specification.

Kraljic's purchasing portfolio

portfolio A matrix indicating four quadrants, representing four basic sourcing strategies, based upon financial impact and supply risk represented by a specific sourcing category.

Table 5.1 Criteria purchasing portfolio

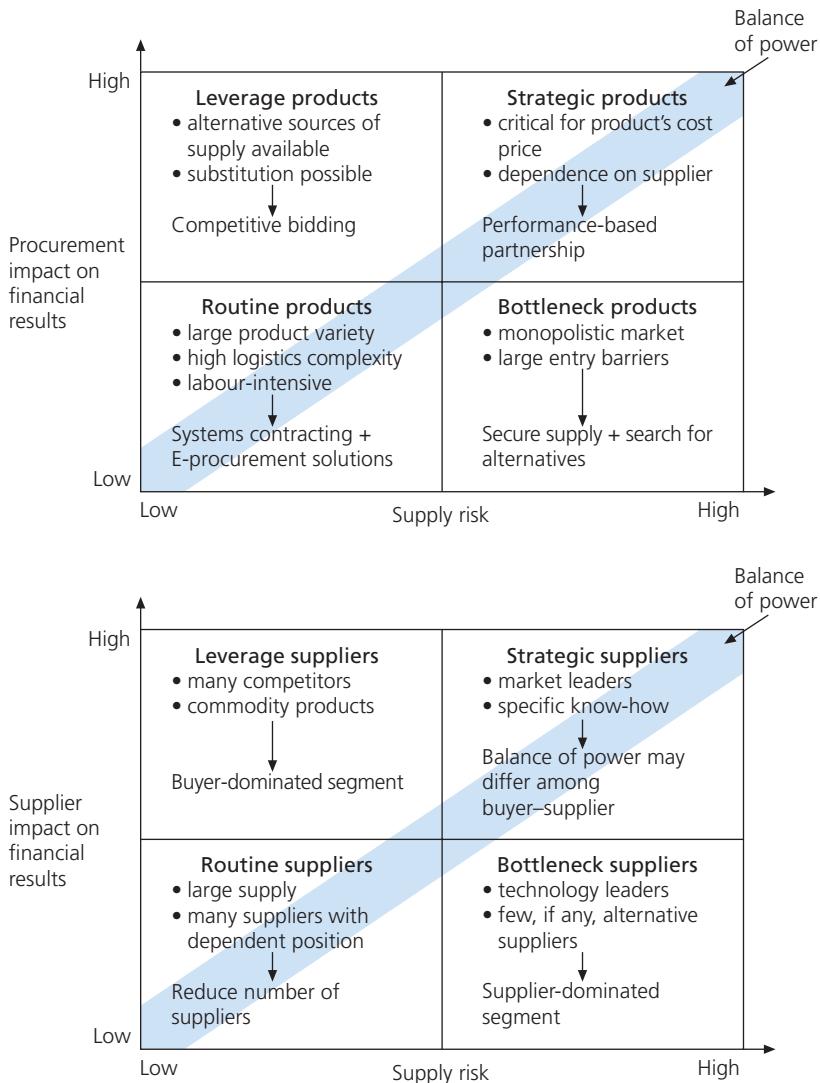
Impact on company's bottom line	Supply risk
● Volume compared to total purchasing volume	● Branded product versus standardized product
● Products share in overall cost price	● Patent, i.e. licensed products
● Products contribute to total company margin	● Availability of substitutes
● Cost savings potential through: <ul style="list-style-type: none"> – competitive bidding – volume agreements 	● Specific quality and logistics requirements (JIT)
● Price elasticity	● Degree to which suppliers are prescribed by company's customers
● Rebate and bonus scheme	● Supplier's share in buyer's purchasing volume
	● Buyer's share in supplier sales turnover
	● Market structure: free competition versus monopoly
	● Market situation: supply versus demand situation
	● Political stability: (market) regulations, political stability
	● Supplier production capacity utilization
	● Supplier's financial position
	● Supplier's switching costs

The combination of these variables yields a two-dimensional matrix with four quadrants. These represent the sourcing (sub-)categories, each representing different interests to the company (refer to Figure 5.4):

- Strategic products. These are high-tech, high-volume products which are often supplied at customer specification. It's likely that only one source of supply (i.e. supplier) is available, which cannot be changed in the short term without incurring considerable costs. Usually this type of product represents a high share in the cost price of the company's end product. Examples are engines and gearboxes for car manufacturers, turbines for the chemical industry and bottling equipment for breweries. Other examples are multi-year company-wide IT helpdesk and IT infrastructure outsourcing contracts, and telephone and communication equipment. Looking at the balance of power between the parties involved one can differentiate between three different sub-segments:
 - Buyer-dominated segment. Here requirements are in fact imposed on the supplier by the buyer/manufacturer. Although some of these manufacturers have developed partnership programmes for their suppliers, suppliers will experience the relationship as rather one-sided. This situation is common in the car industry. The relationship between supplier and buyer is not a balanced one. The car manufacturers dictate their demands to the suppliers, who just have to meet their requirements. Sometimes they even combine their buying power. In 2019, for example, Germany's cartel authority fined BMW, VW and Daimler a total of €100 million for unlawful buying behaviour in relation to long steel products. From 2004 to 2013, the automakers regularly met with their suppliers to discuss uniform surcharges when buying long steel products. Unlawful prices resulting from the cartel were paid until at least 2016. The car manufacturers accepted the fines. The steel products involved are used for crankshafts, gearwheels and steering rods and account for less than 1 per cent of a car's final value (Hummel, 2019).

- Supplier-dominated segment. Here the situation is different. Through its technology and carefully designed marketing strategies the supplier actually has the customer 'locked in' a relationship. This is often the case in the B2B IT industry, where IT providers have made their customers totally dependent on them with multi-year contracts for the supply of hardware, software and services (e.g. IBM, Accenture, SAP, Oracle, Microsoft). Customers buy hardware and software from one single supplier, only to find out that the same supplier charges enormously for these. Usually the performance guarantee is only valid if all products and services are bought from that same supplier. The customer has little leeway in general; it can only accept the conditions imposed by the supplier. Outsourcing may easily lead to this type of situation.
- Balanced relationship. In this situation neither of the two parties dominates the other. They have a mutual interest in keeping the relationship stable. In this situation a 'partnership relationship' may develop over time.

Figure 5.4 Procurement product portfolio and supplier portfolio



Leverage products In general, these are the products that can be obtained from various suppliers at standard quality grades. They represent a relatively large share of the end product's cost price and are bought at large volumes.

- **Leverage products.** In general, these are the products that can be obtained from various suppliers at standard quality grades. They represent a relatively large share of the end-product's cost price and are bought at large volumes. A small change in price has a relatively strong effect on the cost price of the end-product. This is the reason why the buyer exerts aggressive sourcing and tendering among a small sample of prequalified suppliers. Using e-auctions may be useful here to arrive at competitive prices in an efficient way. Examples are bulk chemicals, steel and aluminum profiles, packaging, steel plate, raw materials and standard semi-manufactured commodities.

Characteristic of this situation is that the buyer has freedom of choice regarding their selection of suppliers. There are many suppliers around and the 'switching costs' are low. Abuse of this power, however, can lead to co-operation between the suppliers. Cartels and price agreements, although forbidden under EC law, may develop in these situations, shifting the commodity to the right side of the matrix.

- Bottleneck products. These items represent a relatively limited value in terms of money, but they are vulnerable with regard to their supply. They can mostly be obtained from only one supplier. Examples are catalytic products for the chemical industry, pigments for the paint industry, natural flavourings and vitamins for the food industry and spare parts for equipment. In general, the supplier is dominant in the relationship with the customer, which may result in high prices, long delivery times, bad service and severe cost consequences.
- Routine products. These products produce few technical or commercial problems from a procurement point of view. They usually have a small value per item and there are many alternative suppliers. In practice, most inventory items fall into this category. Examples are cleaning materials, office supplies, maintenance supplies, fasteners, etc.

The problem with routine products is that the costs of handling are higher than the value of the products itself. Usually, 80 per cent of the time and energy of the procurement department is used for these products: a reason why procurement is often seen as an administrative job. The procurement of these routine products should be organized efficiently, in order to spare time for the other, more interesting products.

Depending on the product segment of the portfolio, i.e. the power relationship between buyer and supplier, the sourcing strategy will differ. The emphasis of procurement should mainly lie with the strategic, bottleneck and leverage products. Work related to routine products has to be limited as much as possible. Next the four different sourcing strategies are described in more detail.

FOUR BASIC SOURCING STRATEGIES

For every segment of the portfolio a different sourcing strategy is possible. These strategies can be summarized as follows:

- Performance-based partnership. Strategic products together with the leverage products make up 80 per cent of total turnover. Minor changes in price levels will have an immediate impact on the end-product's costs (i.e. costs of goods sold) so that changes in price and underlying costs, as well as developments in the supplier market, must be monitored closely. At the same time, the supply risks are high as the company is dependent on a few suppliers. These arguments justify a centralized or coordinated sourcing approach. Depending on the relative power position of the different parties involved, the sourcing strategy for strategic products will be aimed at developing

close collaborative supplier relationships (i.e. a partnership). The goal is to create mutual collaboration based on pre-planned and mutually agreed cost and operational improvement targets. A relationship based on 'open costing' is preferred. 'Open costing' or open cost calculation relates to a situation where the buyer discusses how to improve the supplier's cost position based upon a detailed cost calculation. With the suppliers, efficiency programmes are developed to achieve cost reduction, quality improvement, process improvement and improved product development.

- Competitive bidding. For leverage products a sourcing strategy based on the principle of competitive bidding or tendering will be pursued. Since the suppliers and products are basically interchangeable, there will be, as a rule, no long-term supply contracts. Long-term contracts and annual agreements will be combined with 'spot' buying. In most cases buyers will prefer to spread the total spend among multiple suppliers (i.e. multiple sourcing). Buying at a minimum price while maintaining the required quality level and continuity of supply will take priority here. Small savings (small in terms of percentages) represent a large sum of money. This justifies an active market scanning through continuous supply market research and analysis. Regularly, outsiders will be introduced to challenge incumbent suppliers and to avoid emergence of price arrangements between them.

Buying of leverage products justifies a corporate or coordinated sourcing approach where corporate sourcing teams negotiate framework agreements with a number of preferred suppliers which can then be used by individual business units. Price changes caused by, for example, demand and supply changes, are monitored closely in order to estimate the effect on the cost price.

- Securing continuity of supply. The sourcing strategy concerning bottleneck products should focus on securing continuity of supply, if necessary at additional cost. At the same time activities should be conducted in such a way as to reduce dependence on these suppliers. This is done by developing alternative products and looking for alternative suppliers. However, the costs involved in these actions (for example, tests in laboratories) often exceed the cost savings obtained, which is why management often has difficulty in approving this type of action.

A risk analysis to determine the most important bottleneck items in short-, medium- and long-term supply is necessary. Based on this analysis risk mitigation and contingency plans are made. With contingency planning, measures are prepared in case one of the established risks actually occurs. Examples of measures are consigned stock agreements aimed at keeping stocks of materials at the supplier's or the company's own premises, preparing alternative modes of transportation and actively investigating product and supplier alternatives.

- Reducing operational complexity. Routine products require a sourcing strategy which is aimed at reducing administrative and logistic complexity and increasing process efficiency. Buyers will have to work out simple but efficient ordering and administrative routines with the suppliers in the form of e-procurement solutions, through which employees can order directly from electronic catalogues of the preselected supplier. A few aspects relevant to the sourcing strategy for these products are standardizing the product assortment (article catalogue), reducing the number of suppliers, pursuing systems contracts for categories of MRO items (office supplies, technical maintenance products, cleaning products, catering, etc.), working with e-procurement solutions (i.e. e-catalogs, P2P systems, B2B marketplaces), or using company credit cards and reverse (or 'self') billing. A final example is to contract out the procurement of these articles to specialized procurement offices or trading houses.

The use of the procurement portfolio leads to a differentiated sourcing strategy. It points out that suppliers represent a different interest for a company. The different sourcing strategies are summarized in Table 5.2.

In some European countries the portfolio method is very popular. Many procurement departments use it as their main strategic positioning tool for thinking about sourcing and SRM decisions. Some researchers (Gelderman & van Weele, 2005) have reported that 60 per cent of industrial suppliers and manufacturers may use this approach in their organizations.

Table 5.2 Basic characteristics of the four sourcing strategies

Strategies Characteristics	Partnership	Competitive bidding	Secure supply	Reducing operational complexity
Objective	<ul style="list-style-type: none"> Create mutual commitment in long-term relationship 	<ul style="list-style-type: none"> Obtain 'best deal' for short term 	<ul style="list-style-type: none"> Secure short- and long-term supply Reduce supply risk 	<ul style="list-style-type: none"> Reduce logistic complexity Improve operational efficiency Reduce number of suppliers
Suitable for	<ul style="list-style-type: none"> Strategic products (gearboxes, axles, optics, engines) 	<ul style="list-style-type: none"> Leverage products (commodities, steelplate, wire) 	<ul style="list-style-type: none"> Bottleneck products (natural flavours, vitamins, pigments) 	<ul style="list-style-type: none"> Routine products (consumables, supplies)
Activities	<ul style="list-style-type: none"> Accurate forecast of future requirements Supply risk analysis Careful supplier selection 'Should cost' analysis Rolling materials schedules Effective change-order procedure Supplier rating 	<ul style="list-style-type: none"> Improve product/market knowledge Search for alternative products/suppliers Reallocate purchasing volumes over suppliers Optimize order quantities 'Target-pricing' 	<ul style="list-style-type: none"> Accurate forecast of future requirements Supply risk analysis Determine ranking in supplier's client list Develop preventative measures (buffer stock, consigned stock, transportation) Search for alternative products/suppliers 	<ul style="list-style-type: none"> Subcontract per product group/product family Standardize product assortment Design effective internal order delivery and invoicing procedures Delegate order handling to internal user via P2P solutions
Decision level	<ul style="list-style-type: none"> Board level Cross-functional approach 	<ul style="list-style-type: none"> Board level Procurement 	<ul style="list-style-type: none"> Procurement Cross-functional approach 	<ul style="list-style-type: none"> Procurement Cross-functional approach

Memo 5.2 looks at a real-life case, although anonymized here, of a multinational company seeking to collaborate further with its suppliers to reduce costs after one of its customers insisted the company reduce its costs and improve its operational performance. It shows how not every customer is as equally important to a supplier.

A critique on the procurement portfolio analysis is that only the buyer perspective is used to assess and plot suppliers or product categories. When designing effective sourcing strategies, both the buyer and supplier perspective need to be recognized.

Memo 5.2

It takes two to tango!

Foodco is a multinational company that develops, produces and sells a wide range of nutritional and high-quality dairy products and fruit-based drinks. It competes against global players like Nestlé, Danone, Arla, etc. and has a strong position in West and Central Europe, West Africa and Southeast Asia. In total, Foodco operates 90 production sites and employs 17,580 people across the globe. Over the past years, Foodco has shown reasonable financial results (profit margin is about 5.9 per cent and return on capital employed (ROCE) is 23.7). Total turnover is €4.7 billion of which €2.9 billion is identified as procurement spend. The corporate procurement department aims to be a key contributor to Foodco's business strategy, competitive differentiation and financial performance. Corporate sourcing teams are in place to manage key spend categories and key suppliers. They bundle the procurement needs of the production sites and reduce the number of suppliers where possible to leverage their scale.

Recently, an international supermarket buying group forced Foodco to drastically reduce its costs and increase its operational performance. In response to these increased demands, Foodco started a corporate supplier improvement programme aimed at its key suppliers. The idea behind it was: 'Let's do to our suppliers what our major customer is doing to us!' The sourcing teams invited all key suppliers to come up with suggestions for cost reduction and/or supply chain improvements. Most key suppliers willingly accepted the invitation and quickly came up with valuable suggestions on possible improvements

in costs, quality, logistics and even innovations. However, one of their major packaging suppliers did not. PackCo responded only after several weeks with a letter saying: 'We discussed our mutual relationship at our board meeting and could not find any suggestions for improvement.'

The packaging solution of PackCo is widely used in Foodco's production sites around the world. Packaging is an important spend category for Foodco, representing the third largest spend category and is a substantial part of the cost of goods sold. Also, it is difficult to switch to another supplier due to consumer and trade preferences and high switching costs. Both business impact and supply risk are high, making this specific packaging solution a strategic product for Foodco.

Following the suggestion of Kraljic's procurement matrix, the sourcing team reached out to the supplier to explore further opportunities for collaboration. However, the case shows clearly that although the product might be strategic for the buyer, a supplier might not be willing to collaborate. The question Foodco should have asked themselves is to what extent are we an important customer for PackCo? Based upon the fact that PackCo is a dominant market leader in the packaging industry and Foodco represents just 1 per cent of its total turnover, it might be that Foodco is not. Chances are high that PackCo is not going to move, and we will wait and see what will happen.

Source: written by the authors based upon an actual case.



The supplier perspective is reflected in the supplier account portfolio. Not every customer is of equal importance to a supplier. More attractive customers and more important customers (i.e. customers of choice) get more attention and better treatment than less attractive and important customers. The supplier account portfolio differentiates between customers based upon two criteria: customer attractiveness and the supplier's competitive position.¹ Customer attractiveness is determined by among others profit margin made on customer orders, the promise of future business growth, access to new technologies or new product development projects, customer payment behaviour, business opportunities, relationship quality, recognition and customer integrity. The supplier's competitive position is determined among others by the number of current suppliers for the category involved, supplier switching cost, number of substitute products or services that are available, etc.

¹The supplier account portfolio (originally proposed by Steele and Court (1996)) is sometimes referred to as the supplier preferencing matrix.

Based upon these two criteria, four customer segments can be identified:

- Core segment. This segment is suitable for building long-term and close supplier customer relationships. Given the importance of the account, the customer is served by a dedicated supplier account manager or account organization. Where there is a balanced relationship (which is not always the case) both parties are willing to invest time and money in building and developing the relationship. This relationship may lead to joint development and innovation projects, combined efforts to improve supply chain efficiency and continuous improvement. For a supplier it is important to keep this type of customer very satisfied. If such a customer decides to move to another supplier, it is not easy to take this account back. Therefore, they will make significant investments to prevent this from happening.
- Development segment. In this customer segment the supplier is in a weak position as they need to compete for the share of the customer's wallet with other suppliers. The supplier's sales strategy is aimed at nurturing the customer by providing more added value to the customer, in the hope that the customer will allocate more business to them rather than to their competitors. This could be done by offering a more complete product assortment, offering superior services and improving customer service and quality. The supplier's sales strategy is to obtain more business from the customer to the detriment of its direct competitors. Therefore, the supplier is also willing to invest in the buyer relationship in this segment.
- Exploitation segment. In this segment the supplier has a strong position versus its customers. Customers rely on the supplier to a high degree as they have not many alternatives. Examples are spare parts for equipment and investment goods, or a situation in which the supplier's product or brand is prescribed by a customer of the buyer's company or designer. In those cases the buyer has very little room to manoeuvre, which is why the supplier can aim for a higher, profitable price. The supplier's sales strategy here is to optimally benefit from its strong sales position.
- Nuisance segment. Building long-term and sustainable customer relationships is difficult in this segment as the buyer can easily switch from supplier A to supplier B. The buyer has many alternatives for the particular product at hand or supplier. They don't want to invest in long-term relationships. Rather, they tender frequently in order to obtain the lowest price. The buyer represents only a small commercial interest to the supplier, which is why the supplier is less willing to invest in the relationship.

When developing sourcing strategies, the buyer needs to assess what their position is in the supplier's account portfolio. A strategic product should preferably match a position in the core quadrant of the supplier's account portfolio. If not, the buyer will find out that the supplier will be reluctant to invest in their ideas to develop better and more competitive solutions for their company.

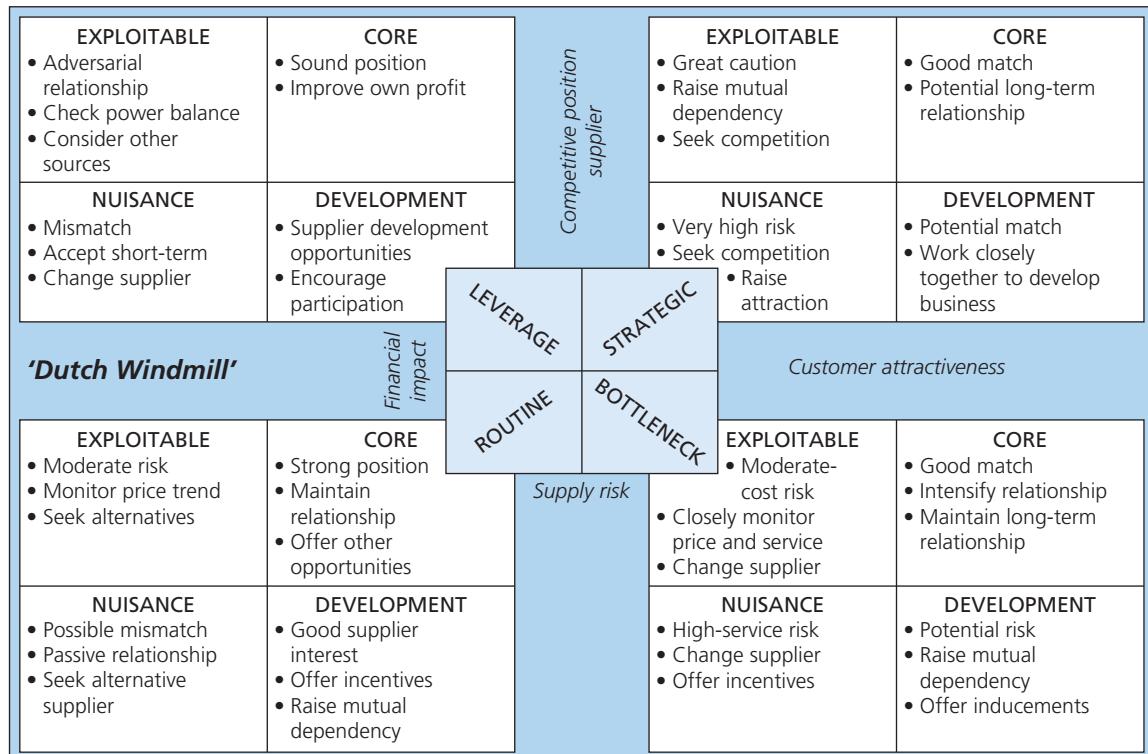
Detailed knowledge and a good understanding of the dependence of both parties and vice versa may prevent disappointment. This is the reason why some companies have introduced the **Dutch windmill** as an extension to their procurement portfolio analysis (refer to Figure 5.5). This portfolio approach allows the buyer to mirror their view (i.e. procurement portfolio) to the one used by the supplier (i.e. supplier account portfolio). In general, combining both the buyer's portfolio and the supplier's portfolio leads to

Dutch windmill
Combination of buyer's purchasing portfolio and supplier's customer portfolio, leading to 16 different business-to-business relationships, each of which calls for a different sourcing strategy.

more realistic expectations and plans with regard to future buyer–seller collaboration. Based upon the Dutch windmill, 16 buyer–seller relationships are possible, out of which (only) one probably is best suited for long-term collaboration. In most cases the position of the buyer versus the seller will be different and limit the opportunity for strategic collaboration.

Figure 5.5 Dutch windmill: analyzing buyer–seller interdependence

Source: NEVI (www.nevi.nl). Reproduced with permission.



Developing a sourcing strategy

Sourcing strategies should not only be deduced from the portfolio analysis. Other factors need to be taken into account as well. First, a thorough internal analysis should be made of the company's business strategy, procurement spend, buying behaviour, contracts, requirements and specifications. Next, the supply market should be analyzed (i.e. procurement and supplier portfolio analyses) for market trends and developments and the capacities and strategies of individual suppliers. Finally, some sourcing managers analyze the supply chain (i.e. supply chain mapping) to gain a deeper understanding of the costs, inventories, logistics, supply chain risks, sustainability performance and innovation opportunities present further upstream. Once the internal and external analysis is done, the category sourcing strategy can be developed. Here, important questions are whether the supply base needs to be reduced or expanded and what region in the world suppliers should come from.

Another question is what type of relationship the company would need to pursue with suppliers. A final aspect is what type of contract the company would like to put in place in its dealings with suppliers.

Over the past few years many companies have focused their sourcing strategy on reducing the number of suppliers. However, obviously this cannot go on forever. Reducing the number of suppliers should never be considered as a goal in itself. Rather, it should be seen as a vehicle to reduce materials and services costs and supply chain risk and complexity.

Issues that should be addressed by a category sourcing strategy are the following:

- Single vs multiple sourcing. Does the company wish to purchase the product at one supplier or are several suppliers required for that same product? If the company purchases the product at one supplier, the company becomes dependent on that supplier. Supply risk is usually less when the same product is or can be sourced from more than one supplier. However, in that case transaction costs obviously will be higher.
- Global vs local sourcing. Is an international, global supplier orientation required for this product or can a local, national orientation suffice? The answer depends on the type of product and the supply market structure. Factors in favour of local sourcing are: when it concerns a high-tech product for which the product specification often changes; when a high flexibility and precision are required in terms of delivery; and when intensive personal communication is required in the relationship. Factors in favour of global sourcing are: when bulk products or standardized products are concerned; when large price differences exist between suppliers for the same commodities in different parts of the world; when products can be bought in large quantities in order to benefit from transport economies, etc. These examples show that decisions on global vs local sourcing should always be based on the degree of demand predictability and total cost of ownership.
- Partnership or competitive relationship. Does the company wish to buy the product from a supplier with whom a partnership relationship is preferred based upon open book calculations, or is the supplier to be kept at a distance (at arm's length) and the relationship managed by regularly sounding out competition? Entering a partnership relationship has far-reaching consequences for the ways of working of the companies involved, the openness and willingness to share sensitive information and the type of contractual arrangements. These aspects will be discussed later in this chapter. Competitive tendering implies putting out a 'tender' regularly to a number of previously approved suppliers. Depending on the suppliers' propositions, the total volume is spread over the most attractive suppliers. In such a situation, for the individual supplier the allocated volume may differ from year to year. This tactic is mostly used when commodities are purchased, when the products are purchased in large volumes and when many suppliers are available.
- Contract strategy. Developing a contract strategy requires the sourcing manager to make decisions on the following aspects:
 - Buying on contract or buying on spot basis. Is the total volume of purchased products to be covered by a contract or is part of the volume to be bought on a spot basis (at the current market prices)? The advantage of buying under contract is that the volume is bought at a previously agreed price. The buyer is

also certain of delivery. The disadvantage of covering the total volume under a contract is that the company loses its contact with the market. The suppliers who dropped out are aware that the company has secured the delivery of the products and therefore they will not continue to inform the company about the latest developments on the market. In cases of expected price increases, a contract covering the greater part of the total procurement volume is preferred. In cases of expected price decreases, the opposite applies. As a rule, most companies choose a combination of both contract and spot buying.

- Price agreement vs performance agreement. What kind of a contract is preferred? How detailed should it be? Should it be confined to a price agreement only? This may be sufficient when buying fabrics with certain standard qualities. Or is a detailed SLA with specific arrangements on time of delivery, tests, maintenance, guarantees, etc. to be preferred? This is appropriate when contracting for specific process equipment or other investment goods. When buying services, SLAs have become increasingly popular. Another development can be found in the automotive industry. Most automotive companies use a 'life of type' contract for their suppliers of components, which states that the prices have to decline a certain percentage every year as accumulated volumes go up and that the supplier should be able to deliver the specific component during the entire economic life span of the car.

Memo 5.3 takes a look at the benefits and pitfalls of global sourcing.

Memo 5.3

Benefits and pitfalls of global sourcing

Global sourcing is a term used to describe strategic sourcing in a global setting. Today, most companies include global sourcing as part of their international procurement strategy. Its objective is to exploit global efficiencies in the delivery of a product or service. Examples of products and services that are globally sourced are labour-intensive manufactured components from China (car industry), furniture and wooden products from Vietnam (IKEA), call-centre services from English-speaking countries like India (Dell) and software development from Eastern European countries (IT industry). While these examples relate to low-cost country sourcing, global sourcing does not need to be limited to low-cost countries only.

Global sourcing includes two types of activities: (1) reallocating spend volumes from domestic to international suppliers, and (2) co-ordination of common items, materials and suppliers across worldwide purchasing, engineering and operating locations. The first activity can be executed by individual companies (i.e. small and medium-sized companies). The latter is related to the sourcing practices of multi-unit companies. Research that has been conducted on why

global sourcing is being done is equivocal: it is aimed at getting products from foreign sources of supply at considerably lower cost or price. This is why Western fashion retailers almost exclusively source their garments from low-cost countries: price differences with domestic suppliers are so large that they can easily compensate for additional logistics and transport costs. Moreover, suppliers in low-cost countries can usually meet the capacity requirements, i.e. volumes, better than traditional suppliers.

Clearly, global sourcing has advantages and disadvantages. Advantages may relate to lower unit cost, benchmarking current suppliers, developing new suppliers to stimulate competition and getting access to new markets. Disadvantages are related to much more complicated distribution and logistics, increased handling costs due to customs regulations and other formalities, problems that may occur due to dealing with different cultures, contractual problems, a higher carbon footprint and higher uncertainty with regard to on-time delivery and quality.



A specific factor to be considered in dealing with low-cost countries is the often rapidly changing political circumstances which may affect the relationship with the supplier.

Dealing with the specific problems related to global sourcing forced large companies to set up International Procurement Offices (IPOs) in order to create a local presence in important supply markets. Besides getting a better idea of the supply opportunities which these markets may represent, these IPOs may also provide technical support to local suppliers in order to improve their product quality and service reliability. Apart from procurement experts, these IPOs in many cases also employ experienced quality assurance and/or sustainability specialists. With regards to global sourcing, companies may have different levels of sophistication. Monczka et al. (2005) differentiate between five worldwide sourcing levels:

- 1** Engage in local sourcing only.
- 2** Engage in international sourcing when needed.
- 3** International sourcing as part of sourcing strategy.
- 4** Integration and co-ordination of global sourcing strategies across worldwide locations.
- 5** Integration and co-ordination of global sourcing strategies with other functional groups.

Global sourcing has brought many benefits to companies and it explains why many products these days can be offered for affordable prices to consumers

through retailers, wholesalers and workshops. However, global sourcing has also created political debate in many countries, as it has moved large purchasing volumes away from domestic suppliers to global suppliers. As a result it has caused domestic manufacturers to reallocate their production facilities on a global scale resulting in massive layoffs in domestic countries. Further, global sourcing has contributed significantly to companies' carbon footprints. Increased supply chain transparency and the impact of social media have revealed important integrity issues in global supply chains, such as use of hazardous materials, child labour and corruption. These issues were further emphasized during the global COVID-19 pandemic. They need to be tackled and solved by procurement managers in order not to damage the company's reputation and brand reputation further. Next, the Suez Canal blockage in 2021 by the Ever Given, a huge container carrier, caused serious delays for many ships behind them. As a result, as ships could not leave port, many ports in Asia were congested, which led to unprecedented large-scale delays and long logistics transport lead-times.

These global supply chain disruptions have prevented quick responses to changing customer demand in domestic markets and is the reason why large companies today may review or even reconsider their global sourcing practices and decide to reallocate spend volumes to local suppliers.

Category sourcing plan
Identifies the sourcing strategy for a certain category.

Category sourcing plan

A category sourcing plan is a formal plan for a certain category that explains how the company is going to deal with certain supply markets and its key supplier relationships, in order to secure the supply of these products and services in the short and long term. Category sourcing as a concept includes three stages: category planning, category sourcing and contract implementation. In the remainder of this chapter we will discuss the first two stages in more detail. Figure 5.6 provides an overview of the elements of a category sourcing plan.

Category sourcing plans need to have a strong link to the overall business goals and strategies. These serve as a point of departure for all planning activities. Understanding the company's customer markets and competitive position is important as these will reveal the company's strategic priorities. Next, it is important to understand who the most important stakeholders are to be able to involve these effectively and in a timely manner in the category planning process. As the stakeholders are identified during the pre-study, the category planning process starts with assembling a cross-functional (and in many cases) cross-business² category team that will be responsible for all planning activities. Normally, this team would report directly to the board of directors.

²Cross-business means team members may represent different subsidiaries, i.e. business units (in a large global company).

Figure 5.6 Contents of a category sourcing plan

- **Business strategy and business issues:**
 - business goals and issues
 - current and future business requirements
 - business priorities
 - important stakeholders
 - infrastructure and other organizational conditions
- **Analysis of historical data:**
 - historical usage and supplier performance reports
 - functional, technical, quality, logistics and environmental specifications
 - supply market analysis and supplier analysis
 - supply chain mapping
 - current suppliers
 - appraisal and ranking of suppliers
 - price and cost analysis, important cost drivers
 - legal and environmental conditions
- **Customer requirements and procurement process**
- **Objectives sourcing strategy: statement of measurable results that need to be obtained in terms of:**
 - cost reduction
 - quality improvement
 - lead-time reduction
 - inventory reduction
 - reduction transaction cost
 - reduction working capital
 - innovation
 - sustainability
- **Category sourcing strategy:**
 - targeted number of suppliers
 - supplier performance requirements
 - location/geographic spread of suppliers
 - type of preferred supplier relationship
 - type of preferred contract
 - supplier performance measures (KPIs)
- **Planning of sourcing activities:**
 - briefing and team preparation
 - spend and supply market analysis
 - target setting and activity programming
 - commodity strategy development
 - sending out RFIs and RFPs
 - sending out RFQs
 - bid comparison and negotiations
 - contract negotiations and contract signing
 - communication and contract reviews
- **Organization and team composition**
- **Summary of expected results and costs**

The team starts its activities based upon a thorough briefing resulting from the feasibility study. The analysis of the company's current and future spend is reviewed and, where needed, expanded. The same goes for the data reported on the company's supply base. A topic of particular interest is the definition of the company's present and future product and service requirements. These requirements are described in the broadest sense, recognizing future volumes, delivery and quality specifications, safety, environmental and legal conditions that should be considered, etc.

All these data provide the background for defining the targets and objectives that should be realized. These in many cases relate to financial issues, such as material cost reduction, cash flow and working capital improvement, but may also relate to logistics issues, for example lead-time reduction and inventory reduction. New product innovation may also be a particular topic of concern to many sourcing teams as might mitigating supply chain risks that have been identified.

When the deliverables of the sourcing strategy are clear, the different elements need to be discussed. Here, obvious concerns are what number of suppliers to deal with in the future, and what type of relationship to pursue to realize the sourcing objectives and targets. Also, the type of contract to pursue in the relationship with the supplier needs to be discussed, as does the duration of the contract. When the contract type has been decided, draft contracts are prepared in order to include these in the bid packages that will be sent to the supplier later on. At that stage, the team will also have discussed the most important supplier selection criteria, bid award criteria and KPIs that will be used to monitor contract compliance and supplier performance at contract execution.

During these activities the category sourcing team will frequently present its findings to the board of directors (or a sourcing board consisting of business and procurement leaders) to check whether their ideas and plans are still attuned to the expectations of senior management. Approval from senior management for the intended sourcing strategy is required before entering into the next stage of the planning process.

After such approval the team may start with the execution of the sourcing process itself. First, the team will put together the supplier long list, having sent out initial requests for information (RFIs) or requests for proposal (RFPs). The idea here is to check the qualifications of potential suppliers and to find out their interest in obtaining the company's business. Therefore, apart from collecting general company information (such as annual and financial reports), data on the supplier's product range, its services and customer references is generated. The most promising suppliers that meet the company's general list of supplier qualifications are put on the supplier short list. The bid package, consisting of the buyer's procurement requirements, a timetable and (sometimes) draft contract, is sent to these suppliers with a request to submit a competitive bid before a predefined target date. Special instructions about how to submit the bid (electronically or through a sealed envelope) are also part of the bid package.

Having received all the bids, the team starts to systematically analyze them and compare the supplier proposals with the preset purchase requirements. Here, the team may decide to rank the different bids in a specific order to identify the two best suppliers. Next, the commercial negotiations may start between the parties involved. Non-competitive suppliers are informed about why they are not being selected.

When sourcing teams arrive at this stage, it is important they have sufficient mandate from senior management and/or the sourcing board to close a deal on behalf of the company. Lack of mandate may lead to a lack of credibility in the discussions with suppliers and may slow down negotiations unnecessarily. Before finalizing the negotiations and closing the contract, senior management probably needs to be briefed again to gain their final approval for closing the deal with the supplier.

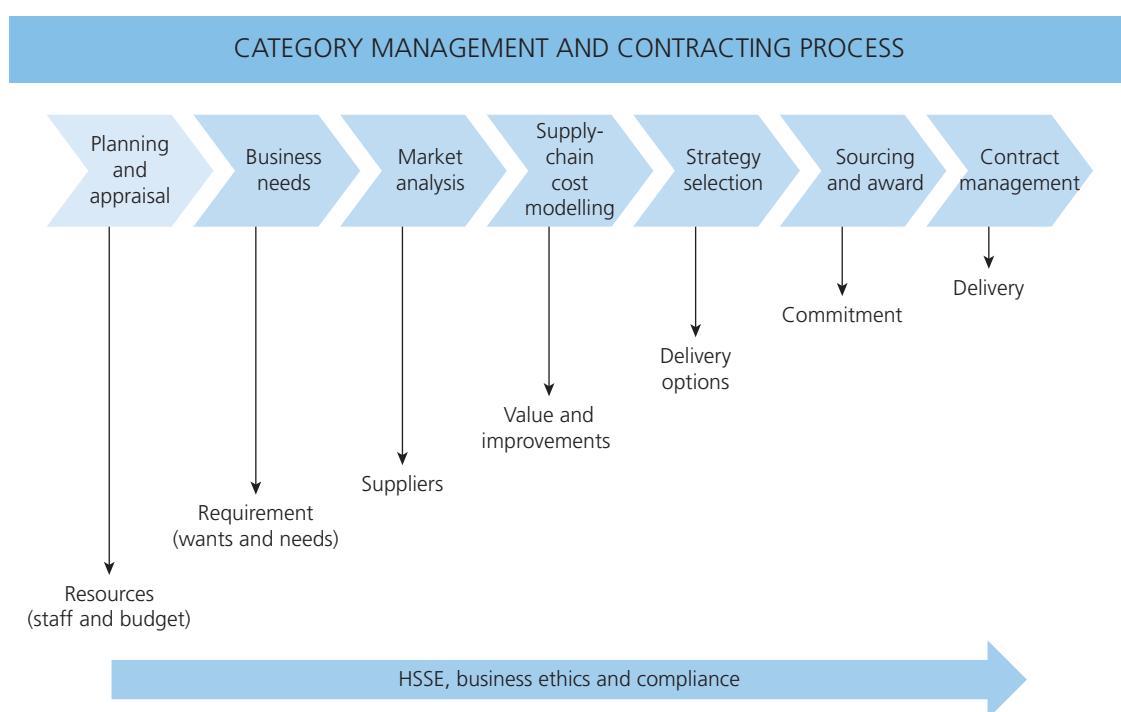
This process may seem simple and straightforward. However, it must be realized that category sourcing teams within multinational companies in most cases serve the interests of many business units, who all need to be represented at certain stages in the process. This makes the negotiations within the company often more difficult and time

consuming than the ones that take place with external suppliers. The negotiations on the contract details will commence after the commercial negotiations, which often require intervention from legal specialists. In practice, these discussions may take much longer than those that were required for the commercial negotiations.

When the appropriate signatures are put on the contract, most category sourcing managers consider their job to be done. However, in fact the work internally starts from the moment when the many internal stakeholders need to be informed about the scope and details of the contract. They should be urged to use the contracts in their dealings with suppliers. Having communicated the contracts, an important task of the category sourcing manager is to monitor contract compliance per business unit to secure that the company in total lives up to the agreements made with the suppliers. Another topic that warrants efforts from the category sourcing manager is to monitor supplier performance based upon the KPIs that were agreed upon earlier in the contract. This information may be used in periodic supplier review meetings, where problems that have arisen in the relationship with the company are discussed and solved. Figure 5.7 illustrates how Shell has structured its category management process worldwide. It includes contract management, which refers to managing internal contract compliance and monitoring supplier delivery performance.

Figure 5.7 Category management model: Shell Global Solutions International

Source: Copyright of Shell Global Solutions International. Printed with permission.



Memo 5.4 shows that even when there is a professional sourcing methodology resulting in the best contract in the industry, the proof of the pudding is still in the eating. The contract implementation stage is where it all comes together, or not. Sourcing managers should be extra careful with (re)sourcing initiatives when it involves a strategic product and/or supplier.

Memo 5.4

How a supplier switch caused KFC UK to run out of chicken

KFC, the fast-food restaurant chain with chicken as its main dish, was founded by Harland Sanders (aka Colonel Sanders). The first restaurant opened in 1952 under the name Kentucky Fried Chicken in Salt Lake City, Utah. Today, with over 20,000 outlets in more than 125 countries across the globe, KFC is the fourth largest fast-food brand in the world after Subway, McDonald's and Starbucks.

Late in 2016 at the annual investor conference in New York, Greg Creed, CEO of Yum! Brands (owner of KFC, Pizza Hut and Taco Bell) announced a strategic transformation plan to drive growth while improving the cost structure and efficiency. KFC's supply chain is crucial for delivering outstanding and fresh chicken to its customers. Therefore, the company placed distribution and logistics at the heart of its new strategy to deliver improved services to customers while concurrently reducing environmental impact and costs. After analyzing various sourcing options, KFC UK decided in June 2017 to end its relationship with their long-lasting distributor (Bidvest Logistics). The contract was about to expire in February 2018, and KFC decided to put out a tender in the market and negotiate a better contract, one that was more (cost-)efficient and aimed towards innovation and sustainability.

After several months of tender submissions, supplier pitches and negotiations by a cross-functional sourcing team, KFC decided to select German specialist food service logistics provider QSL and global logistics services provider DHL as their new 3PL partners. QSL and DHL had submitted

a joint proposal in which they promised a new benchmark for delivering fresh products to KFC UK's restaurants in a more sustainable way against a very attractive price. After the contract was signed, KFC UK started to plan for the major transition together with their new partners.

On Valentine's day (14 February 2018) KFC UK switched its delivery operations from Bidvest Logistics to DHL and QSL. Right from the start, deliveries to the restaurants were either slow or incomplete, eventually resulting in a major supply chain disruption. Three days after the changeover, the restaurants were fast running out of fresh chicken. Without being able to prepare and cook the Original Recipe chicken on the bone, the restaurants were not permitted to open. On 16 February KFC was forced to temporarily close 80 per cent of its 900 outlets in the UK.

After a disastrous weekend, DHL admitted on Monday (19 February) that a number of deliveries had been incomplete or delayed because of operational issues. It stated that it was working on rectifying this high priority situation with both KFC and QSL to allow KFC to reopen its restaurants over the coming days. However, that didn't happen. A chicken restaurant without any chicken. It's not ideal. KFC UK faced the thorny choice of hoping the deal with DHL and QSL would eventually work out, or going back to its old supplier, or finding another solution.

Source: Rozemeijer and Wynstra (2020).



Getting better results from suppliers

Is it always necessary to work through this systematic category sourcing cycle? Is there a simpler way for companies that do not have sufficient employees to staff these category sourcing teams? Indeed, there is. Here is a way of working that has proved to be very effective in smaller organizations to drive down procurement expenditure. The first step is to check the contracts that are currently in place with suppliers (if these are available at all) and to make sure that these are updated in close co-operation with the internal user. The second step, now the company knows what contract to look for, is to find the best possible supplier for its needs. The third step, finally, consists of developing the best possible solution for the company's needs in close collaboration with the selected,

best-in-class supplier. Each of these steps will lead to significant benefits and savings. Each step is described in more detail below:

- Put the best possible legal contract in place. This step concerns a thorough analysis of current contract arrangements with existing suppliers. In many companies, contract review results in considerable search activities, since it appears that contracts are difficult to find and have not been accurately documented. This is mostly true for contracts which have been closed without the involvement of the procurement department. Often the supplier has to be contacted to provide a copy of the contract. The contract documents are analyzed at this stage and checked for completeness and functionality. The main objective is to determine which price agreements have been made, whether the actual performance and satisfaction with the supplier have been documented and to assess the risks and responsibilities involved. Usually, such an analysis leads to a new, up-to-date and complete contract outlining the product and service performance required from the supplier. The objective of this step is to conclude a performance-based contract. Experiences have shown that this activity alone can lead to substantial savings (5–10 per cent). An example is a food company where such analysis revealed a maintenance contract which was still being paid for despite the machines having been sold and scrapped years ago.
- Select the best possible supplier. This step builds on the previous one. Having a sound legal contract in place, the question now arises as to whether the contracted partner is the best the company could get. This step, therefore, focuses on analyzing the (international) supply market and sounding out international competition. The objective here is to get a competitive bid from a large number of new suppliers. An important element is that the number of possible suppliers is not limited to well-known companies. Before the supply market research, the company must decide which requirements the suppliers have to meet (supplier prequalification criteria). Then a shortlist is made of all the suppliers who conform to this profile. Based upon a request for quotation the prequalified suppliers (5 to 15) are asked to present their proposals; a few international suppliers are deliberately included.

Digital tendering procedures such as e-auctions may be used here to organize and speed up the process. Some companies do not use a tender or an e-auction and nevertheless are able to arrive at very competitive prices in their dealings with suppliers. After suppliers have been preselected, they are invited to come up with their proposals in a first round. Next, the three most promising suppliers are invited for a number of creative sessions together with the specialists from the customer. During these sessions the participants are challenged to come up with creative ideas for cost reduction, improvement of the product design and quality improvement. At a later stage, the customer team will visit the supplier to determine possible means of improving the product process, using a detailed process audit. The ideas that grow out of this workshop are presented to the management of the supplier at the end of the workshop. Honda of America developed a 'Best Practice Program' for this purpose.

After these ideas have been processed in a final procurement order specification, the suppliers are invited during a second round to present their final quotations. The final choice of supplier is based on these quotations. The objective of this step is to identify the 'best-in-class supplier' for the required product or service in a performance-based contract. Given the effort that this approach requires, it is only applied when buying key commodities and major investment goods. In most cases this step results again in considerable procurement savings.

- Get the best possible solution from the best possible supplier. After the previous steps the company now has a performance-based contract with the best-in-class supplier. From now on, the focus is on continuous improvement within the supplier relationship. The assumption here is that there is a balance of power in the buyer-seller relationship, or that the balance of power is to the advantage of the buyer. At this stage concrete objectives and targets on price and cost reduction, quality improvement, lead-time reduction and improvement of customer service are settled.

These objectives and targets are often prepared by the category sourcing teams. A major objective is to exchange ideas for improvement activities on both sides. Both parties exchange sensitive technical information and cost information. Often, buyers find out that the greater part of the homework has to be done on their side! Working this way leads to a situation where the supplier becomes gradually integrated into the customer's business processes. Buyers will see their suppliers as an extension of their own company that need to be equally, or even better, managed than their internal operations. This approach can result in the early involvement of suppliers in the development of new products. During this period of time, specialists of the supplier are actually working within the organization of the buyer (residential engineering). Vice versa, engineers of the contractor can be present in the organization of the supplier when the first trial production runs take place, supporting them in solving start-up problems.

At this stage, some seasoned category managers will analyze the entire supply chain with help from their suppliers. The instrument used is supply chain mapping; per component, the source of origin of every part is determined. Then, per subcomponent, the procurement contracts are analyzed and possible simplifications for procurement or logistics are identified. In many cases this results in the buyer helping the supplier improve their contracts with the next tier of suppliers. In Europe, this approach is still in its infancy. Characteristic of this stage is that the improvement activities are initiated and managed by the buyer and followed up through regular progress meetings. Detailed supplier rating schedules showing the achievements of suppliers are discussed in these meetings. The results are continuous material cost savings, a reduction in working capital and reductions in transaction costs.

The major objective underlying this way of working is to develop and optimize the operational relationship with the best-in-class suppliers and to integrate it into the new product development processes and projects. In this way suppliers are systematically challenged and mobilized to support the company's overall business strategies and to secure business success.

Summary

Effective category sourcing management is a key cornerstone for a successful business strategy. The way it is executed in organizations increasingly determines its shareholder value. Large manufacturing companies in automotive, electronics, chemical and food industries use procurement and category sourcing strategies as an integrated part of their company strategy. They are proof of the huge savings and significant improvements in operational processes that can be made through dedicated, effective category sourcing management.

In this chapter it has been explained why most suppliers do not automatically think about their clients' interests. Reasons may be due to both the buyer organization's buying behaviour and the supplier's marketing and sales policies. It is fair to say that if buyers are not able to manage their suppliers, the suppliers without doubt will manage their customers. Successful companies link their category sourcing strategies to their overall business strategies. Suppliers basically should support their customers' business strategies in the best way possible. If their customers do well in terms of growth and volume, so will the suppliers. Successful buyers will try to overcome conflicting interests in the relationship with their suppliers, which may have developed over many years. This is done by executing carefully designed category sourcing strategies which focus on where to go for single or multiple sourcing, global sourcing or partnership relationships. These category sourcing strategies result in detailed action programmes which will highlight contract review, competitive bidding and co-operation with suppliers all at the same time.

The foundation of any category sourcing strategy is to make a thorough spend analysis. The total procurement spend is categorized in homogeneous product categories (i.e. sourcing categories) through a category tree that allows for segmenting categories based upon cost-savings potential and ease of implementation. Next, the most promising product categories are subjected to a feasibility study that outlines what cost-savings potential exists for a certain product category and what investments will be needed to capture these. In the case of a positive return, a category team is assigned the task of preparing a detailed category sourcing strategy which will include detailed actions on how to arrive at a proper specification, a sound supplier selection and a legal arrangement (i.e. contract) with the best suppliers selected.

When developing category sourcing strategies, Kraljic's procurement portfolio may be very helpful (Kraljic, 1983). It recognizes that different products require different sourcing strategies. It starts with a thorough analysis of both product groups and the supplier base based on two criteria: (1) procurement's impact on company profitability and (2) the degree of supply risk associated with the procurement of a specific item. An analysis of these aspects provides the first clue for the sourcing strategy that has to be developed. The second step is to further analyze the four product categories: (1) strategic products, (2) leverage products, (3) bottleneck products and (4) routine products. For each of these products different sourcing strategies can be developed.

Category sourcing should be supported by senior management (e.g. a sourcing board). Category sourcing activities should take place in cross-functional sourcing teams. This often requires a complete change of view on traditional procurement practices. Procurement needs to become more and more integrated into line management and the major business processes. The sourcing manager, then, must become a team player.

Assignments

5.1 What is a sourcing strategy? What major questions should a sourcing strategy address?

5.2 Consider a manufacturer of food products (pasta products, dry soups and sauces). Analyze the procurement portfolio based on Kraljic's portfolio analysis. Indicate which products can be characterized as strategic products, leverage products, bottleneck products and routine products.

5.3 What are the primary tasks of a category sourcing manager?

- 5.4** Why would companies in general benefit from reducing their supply base? Explain.
- 5.5** What sourcing strategies would help a company to build a dominant position in its supply chain? Give at least four examples of such sourcing strategies.
- 5.6** Global sourcing has become more popular among manufacturing companies. For what segments of the purchasing portfolio would you recommend a global sourcing strategy? Discuss the advantages and disadvantages of global sourcing.

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6 Sourcing business services

Learning objectives

After studying this chapter you should understand the following:

- The increasing importance of sourcing business services.
- The differences between sourcing services and sourcing goods.
- Different views on sourcing business services and the implications for their procurement.
- The importance of stakeholder management for sourcing business services.
- Specific areas of attention in specifying business services, and selecting and contracting service providers.
- The importance of professional contract management.

Introduction

Business services are services that are exchanged between organizations. The main sourcing categories are professional services (i.e. legal, consultancy), engineering and technical services, HR services, ICT services, marketing and sales services, logistics services, finance services and facility management. Over the past decades, these have grown into a substantial part of a firm's total procurement spend.

When talking about sourcing business services we tend to look first at companies operating in the services sector (e.g. banking, logistics, consulting, temporary labour agency, IT services). Some people may think that compared with companies operating in industrial sectors services companies are lagging behind when it comes to the professional development of procurement as a business function. Recognizing the procurement development model, the procurement function at service providers is usually in one of the first stages of the model. However, a number of services companies have made significant progress in professionalizing their procurement functions. Given the increasing popularity of outsourcing and offshoring services in this sector, services companies have become aware of the need to put professional procurement management in place.

Business services are not only sourced by services companies. Manufacturing companies also increasingly source all kinds of business services. Think about Philips Electronics that has outsourced the entire production of many of its consumer electronics products to contract manufacturers in the Far East.

Also, a growing number of manufacturing companies have successfully evolved their business models to build revenue streams from services. This process is referred to as servitization (Kowalkowski et al., 2016). Next to their core products (e.g. trucks, computers, engines), manufacturing companies like Volvo, Rolls-Royce and IBM generate significant additional revenues from the services they offer. These can be basic services such as delivering spare parts, maintenance, helpdesks, training, condition monitoring; or more advanced services such as customer support agreements, 'power-by-the-hour' and outcome contracts.

Traditionally, transportation companies would buy trucks from a truck manufacturer's dealership and negotiate an attractive acquisition price. Today these transportation companies seek integrated truck lease solutions by negotiating the best all-in rate per kilometre. In such deals the truck manufacturer guarantees a flawless transportation capacity from A to B to its customers during the contract period. The lease rate is related to the contract period and the number of kilometres travelled per year. Costs for services, maintenance and insurance (and most of the time costs of fuel) of the truck are included in the transport rates.

Manufacturers of copying machines operate in a similar way. Sourcing strategies of this type of equipment are no longer aimed at negotiating deals on the lowest acquisition price of the copy machines. Rather, they negotiate a price per copy or print. In the price per copy, all costs including the maintenance and services costs during the lifetime of the contract are supposed to be covered. Of course, the manufacturer or supplier also needs to guarantee a predefined service level. In this situation, the buying organization also wants to contract for the lowest total cost of ownership (TCO) for the equipment to be delivered by the supplier in combination with the highest machine uptime.

The case study looks at how a European telecom provider reviewed its marketing and promotions spend in order to streamline processes and cut overall costs.

Case study

Sourcing marketing services at a European telecom provider

Some years ago a European telecom provider decided to investigate its massive procurement spend related to marketing and promotions. A young assistant controller was given the assignment to investigate the company's marketing and promotions spend and the extent to which procurement processes with regard to this category were in control. Her findings were surprising. The company appeared to do business with a mere 921 suppliers. Among the suppliers were marketing and advertising agencies, market research and media agencies, printing companies supplying all promotion materials and brochures, suppliers of sales promotion items and all kinds of larger and smaller consulting companies. The company did not seem to select its services suppliers in a methodical manner. Many suppliers had already been supplying the company for a long period of time, which had resulted in the development of strong personal relationships. Contracts were not always present and, if they were, they were not up to date. When comparing supplier invoices with contract prices and rates, many deviations were identified, all of which were disadvantageous to the telecom provider. With a few advertising agencies, the relationship was highly problematic. Briefings to these agencies were revised regularly, in one case even 17 times, before the first proof for a commercial was produced. End-of-year bonuses, if agreed, were paid to the company without proper verification of whether the amounts paid were correct. When confronted with these findings, the marketing professionals responded that they were simply too busy to spend time on this.

Many assignments were provided to suppliers by telephone, fax or email and not properly administered. The marketing director had no idea of the financial obligations that were incurred by the company towards its suppliers. Over 20,000 invoices needed to be processed each year and this number was growing fast. The reason was the tedious handling of invoices by the company. Making payment often took, on average, more than three months' lead time. Since the standard payment terms of suppliers were not respected, suppliers sent many interest notes. These added to the administrative burden of the company. Not surprisingly, the transaction costs were enormous, without anyone in the telecom company being aware. When analyzing payment lead times, the long times could be explained by the fact that every invoice needed to be authorized by the departmental managers involved before it could be paid. In one case an invoice had to wait six months before proper authorization was provided by the manager, who appeared to be abroad frequently. Based upon her analysis, the assistant controller had the feeling that the company paid far too much for the services that were provided by the suppliers. Her idea was that a more professional procurement approach could pay off handsomely if the sourcing and transaction processes within the marketing department were managed more effectively.

Traditionally, most services provided by suppliers were related to non-product-related areas, such as cleaning, security and catering. However, today companies source business services that are a fundamental part of the value proposition to their customers. For example, companies that focus on marketing global brands and developing exciting new products can completely outsource warehousing and transportation to a third-party logistics (3PL) provider. Services often extend beyond logistics to include value-added services related to the production or procurement of goods, such as services that integrate parts of the supply chain.

KFC might serve as an example here. In 2018, KFC became frontpage news in the UK as the fried chicken chain restaurant had run out of chicken. With more than 80 per cent of KFC UK restaurants closed due to the chicken shortage, thousands of KFC customers turned to social media platforms to express their dismay. The hashtag '#KFCcrisis' even started trending on Twitter. What happened? After exploring different alternatives in 2017, KFC UK decided to discontinue their long-term relationship with their 3PL provider Bidvest Logistics and set up a new partnership with global logistics services provider DHL. On Valentine's day, 14 February 2018, KFC switched its chicken delivery operations from Bidvest Logistics to the new partner DHL. Only two days later, KFC was forced to temporarily close most of its UK restaurants because DHL deliveries were either too slow or incomplete, resulting in a major disruption to the chicken supply chain (Rozemeijer and Wynstra, 2020).

This example shows that sourcing business services is not without challenges. The introductory case at the beginning of this chapter illustrates that as well, in the context of marketing services. In many cases the procurement has to deal with a wide range of internal customers which are spread out over the entire organization, each having their own wishes and preferences. It is not simple to translate all wishes into a clear specification that is fully accepted by every internal stakeholder. Because demand is highly fragmented throughout the organization, it is difficult to get a clear view of the total spend volume, to identify the actual users and decision-makers, and even to find out with which service providers the company does business.

This chapter deals with the specific characteristics of sourcing business services. First, a definition of business services is provided, as well as a view on how to deal with the procurement of services. Differences between services and goods will become clear, as well as the consequences this may have for the sourcing (decision-making) process.

The increasing importance of services

The share of business services in a company's spend portfolio has gradually been on the rise. Elsewhere, we argued that the procurement to sales ratio for industrial companies may range from 60 to 80 per cent. For services companies this ratio usually amounts to 10–50 per cent. Not surprisingly, for service providers the largest part of their total cost is often related to personnel and not to external spend. Traditionally, most contracted services were related to the supporting activities of the company. Examples of this type of service are car leasing, salary administration and office automation.

However, nowadays, services related to the primary activities of a company's value chain are increasingly contracted to outside providers. In their quest for a vaccine for COVID-19, pharmaceutical companies used external research laboratories and contract research organizations (CROs) to do the clinical trials and test the new vaccines among an international sample of patients. Through their testing programmes, these CROs clearly influence the time to market of new vaccines. Other suppliers, such as UPS, Fedex and DHL, clearly affect the service delivery of the products that are shipped by them on behalf of their customers such as Amazon, Zalando and Apple. Hence, these logistics service providers influence customer satisfaction of the companies that they work for.

A third example is a large international bank that has outsourced the management of its electronic banking systems and electronic payment systems to an outside IT provider. IT solutions, which are managed by outside IT companies, are clearly key in providing and developing attractive electronic banking solutions to both consumers and business customers.

Traditionally, when sourcing business services, personal relationships were deemed more important than cost considerations. This is primarily due to the fact that these services are actually produced in close collaboration and interaction between the buyer and the seller. As a consequence, internal users and budget holders have a dominant role in overall sourcing decision-making, e.g. preparing the scope of work, supplier selection, negotiation and contracting. The procurement organization is often only included in the sourcing process to take care of administrative matters. In such a situation, strong bonds may develop between internal users and the external services providers, which appear difficult to change. As a result, procurement will be forced into an administrative role. However, the cost savings potential may be considerable.

A professional sourcing approach for services can result in considerable savings. Stradford and Tiura (2003) have demonstrated that for services these savings can range from 10 to 29 per cent. However, in some cases cost savings may be of no particular concern. When the provided business services are part of the company's customer value proposition, the discussion should focus primarily on how to challenge the supplier to improve their added value to the final customer. It is here where professional sourcing of services comes into play.

The previous discussion explains why improving the professional level of sourcing services is far from simple. Many procurement professionals think that sourcing services is more difficult than sourcing goods (Jackson et al., 1995). However, business managers often have just the opposite view, which is why rather inexperienced procurement staff are often assigned the task of sourcing services (Smeltzer and Ogden, 2002).

Nevertheless, a more professional approach towards sourcing services is rising up the corporate agenda. Patel (2005) interviewed 30 chief executive officers (CEOs) of

large companies and found out that 70 per cent were worried about how professional services like consultancy, legal services, financial services and marketing services were contracted in their companies. These CEOs were expecting procurement departments to make the difference with regard to sourcing business services. They considered providing superior services and support to internal customers by procurement professionals to be mandatory. Procurement professionals working in services categories therefore need to be more service-driven than cost-driven in comparison with their colleagues who are predominantly sourcing goods.

Differences between goods and services

The differences between services and goods are many. These differences are due to the special characteristics of services. Going through the different stages of the sourcing process (i.e. specifying, selecting and contracting) is more difficult for services than for goods. To understand this, it is necessary to first define services. Here, we define services as ‘the management of a series of more or less tangible activities, which take place in the interaction between customer and supplier employees, that either or not in combination of physical goods or solutions are offered as an integrated solution to a customer problem’.

This definition shows that services can be offered in a combination with tangible goods. Examples are investment goods that suppliers provide in combination with a service contract for maintenance during the economic lifetime of the equipment. According to this definition, services are offered in response to a specific customer need. Sometimes the specific need for a service is very clear, as may be the case when a truck driver needs immediate assistance to repair a flat tyre. Sometimes, however, both the problem and the solution are not precisely clear. In these cases, the problem needs to be correctly defined first, for example by conducting a pre-study before a supplier can be approached for a solution. An example of this is the financial manager who seeks an accounting firm to put together the annual report. In this case the dividing line between the client (customer) organization and the accounting firm requires clarification. What information is available to the firm? Which part of the process can be done by the client? How detailed should the accountant’s draft report be? When should the draft be available?

Services are produced in close interaction between a customer and a supplier. Providing services requires human interaction. Such interaction requires that employees from both sides know and respect each other. It generally takes time to develop a constructive relationship. Many aspects play a role in developing effective business-to-business relationships. Perceptions of the expertise and knowledge that are present in both parties; the economical, commercial and technical aspects of the procurement process; and also the personal elements such as emotions, personal feelings and personal preferences, may support or interfere in business-to-business relationships. This is one of the reasons why it is so difficult for a procurement professional to challenge an existing service contract. Most often a close relationship has grown over time between the employees of the buying organization and the supplier. It speaks for itself that nobody will like procurement to interfere and challenge what the parties involved consider to be their working processes and relationship.

In literature, services are differentiated from goods through four basic characteristics: intangibility, perishability, heterogeneity and simultaneity. The first characteristic relates to the fact that services cannot be touched. Services relate to the performance of a previously defined activity that is conducted in close collaboration with the customer. The problem here is the demarcation of what activity is seen as the prime responsibility of the supplier, and that of the customer. Since services are intangible they cannot be produced as stock. Therefore, the availability of capacity is and should be a major subject in discussions with the supplier.

A vacant seat in an airplane loses its value at the moment of departure of the plane. Supplier expertise and resources should be available at the right time in order to meet the service needs of a customer. That is not simple in situations where the future demands of the customer cannot be predicted. In such a situation the supplier should keep excess capacity available in order to be able to service its customers. Obviously, the customer will have to pay for any excess capacity. As an example, in the **service level agreement (SLA)** for copiers it states that the supplier will be on-site within two hours of having been informed about a failure of their equipment. In such a situation the customer pays not only for the hours spent on repair activities but also for the capacity that the supplier needs to have available to be able to react quickly to customer calls for immediate service.

Heterogeneity implies that every service is unique. Since services involve people and every person is unique, service exchanges cannot be standardized. Services relate to the exchange of knowledge, expertise and capacity that are embedded in human beings. Therefore, the actual exchange will be different depending on the individuals involved. This explains why it is so difficult to produce and source services at a consistent quality (Ellram et al., 2004).

Simultaneity relates to the fact that services are produced and consumed at the same time. This happens in a continuous interaction between employees of the customer and of the supplier. We will discuss this matter in more detail in a later section. Table 6.1 summarizes these four characteristics and some other important aspects of services. The table also shows that service propositions may vary from almost 100 per cent tangible goods to services without any tangible element. This continuum can be used to categorize services depending on the degree of tangibility.

Service level agreement (SLA)
A service level agreement describes the performance which needs to be delivered by the supplier. Key performance indicators (in terms of cost, service and quality levels) are agreed by both parties. Payment to suppliers is based upon specific rates plus a bonus or minus based upon actual performance versus targeted performance.

Table 6.1 Differences between goods and services

Pure services offering	Pure product offering
100%	100%
Services	Product
Intangible	Tangible
Production, distribution and consumption are simultaneous processes	Production and distribution are separated from consumption
More difficult to demonstrate (not available)	Can be demonstrated before moment of purchase
Cannot be transported	Can be transported
Is an activity or a process	Is a physical entity
Is produced in interaction between buyer and seller	Is produced in a specialized remote facility
Customers participate in production process	Customers in general do not participate in the production process
Cannot be stored	Can be stored
Property cannot be physically transferred	Property is physically passed on to new owner

The position of a service on this continuum has a large impact on how to manage the sourcing process of services. The most important implications are discussed in more detail later in this chapter.

Towards a classification of services

For a first classification of services the **procurement portfolio approach** can be used. However, an alternative way to classify services is the one based upon their physical characteristics. Here, a distinction is made between:

- Facility services like cleaning services, contract catering, security and buildings maintenance.
- Financial services, such as banking services, leasing, salary administration, insurance, accounting services, tax consultancy services.
- Professional services, such as legal services, management consultancy, risk management.
- Information and communication technology services, such as computer help desk services, call centre services, telecommunications services and software development and implementation.
- Research and development and technical services, such as technical maintenance, repair and support services, and development and engineering services.
- Transportation and distribution services, such as warehousing, value-added logistics and transport services.
- Human resource services, such as training, recruitment and hiring temporary personnel.
- Marketing services, such as sales support, reselling, advertising, sales agency services, website design and call centre services.

Procurement portfolio approach (identical to Kraljic portfolio) Portfolio consisting of four quadrants (i.e. leverage products, strategic products, routine products and bottleneck products) based upon two criteria: financial impact and supply risk. Serves to develop four differentiated sourcing strategies.

This classification is, in principle, based upon the functional environment in which the service is consumed. It can be used to explain what specialists should be involved in sourcing decision-making.

Apart from this classification, other classifications of business services are available. Services can also be categorized based on how critical these are for the business in which the company operates. Here, we differentiate between business-critical services and non-business-critical services. Business-critical services are services in which a supplier operates in the interface between the buyer and its customers and where the supplier's performance will immediately affect customer satisfaction. For this reason, the logistics services companies that are hired by online retailers (e.g. Amazon or Zalando) are business-critical as late delivery will negatively affect customer satisfaction.

Non-business-critical services are delivered to the buyer but do not directly affect end-customer satisfaction, for example office cleaning services. If offices are cleaned badly this will negatively affect employee satisfaction; however, end-customer satisfaction is not affected by this. Obviously, business-critical service suppliers should be dealt with differently from non-business-critical service suppliers. For business-critical services, involvement of higher management in the sourcing process is more likely than for less critical services.

Another classification of services is described in Memo 6.1 and emphasizes the extent to which a service makes up part of the buying organization's customer value proposition and is either passed on to the end-customer or is consumed within the buying organization. The way in which a service is classified determines how the buying

organization and supplier should interact during the sourcing process and after the contract has been closed. For example, it helps to decide what functional disciplines need to be involved, what capabilities will be needed from both sides, what kind of relation-specific investments need to be made, and what key issues need to be addressed in the dialogue between the buying organization and supplier.

We conclude that there are many ways to classify services. One classification is not necessarily better than another. It is important to realize that the way in which companies classify services will affect both sourcing decision-making and the contract management phase that follows after contract closure. We feel that the most important classification is the one between business-critical and non-business-critical services. Due to the larger uncertainty, critical services will by definition have more stakeholders involved than non-critical services. Next, they will call for a more careful selection of service partners and the contract models that are used to contract their services.

Memo 6.1

A classification of services based on the actual use by the customer organization

Van der Valk (2007) has focused on the question of how buying organizations and suppliers should collaborate during the lifetime of the service contract to accomplish successful business-to-business service exchange. She elaborated on the classification proposed by Wynstra et al. (2006) and identified four basic service types:

- Component services that are passed on unaltered to the final customers of the buying organization (e.g. baggage handling at the airport for an airline company).
- Semi-manufactured services that are being integrated into the buying organization's value proposition to its customers (e.g. in-flight catering services contracted for by an airline).

- Instrumental services that are used by the buying organization to change its primary processes (i.e. management consultancy to professionalize the airline's operational processes).
- Consumption services that are used in different support processes within the buying organization (e.g. cleaning services for offices of the same airline company).



For each of these four types of services, different interaction patterns are proposed for the buying organization and the service provider. The way in which services were actually used by the buying organization appeared to be a useful way to segment services.

The pre-contractual stage

We will discuss three important stages of the pre-contractual stage, the sourcing process, i.e. specifying, selecting and contracting services.

SPECIFYING: DEFINING THE SCOPE OF WORK FOR SERVICE PROVIDERS

Prior to the actual supplier selection decision, it is necessary to determine what the service provider should exactly deliver and accomplish. Here we take Axelsson and Wynstra (2002) as an example, who differentiated between four types of service specifications (refer to Figure 6.1).

Figure 6.1 Methods for specifying business services

Source: Adapted from Axelsson, B., and Wynstra, J. Y. F. (2002). Buying Business Services, Chichester, UK: Wiley. p. 144. Reproduced with permission of Wiley.

Input specification	Throughput specification	Output specification	Outcome specification
Focus on resources and capabilities of the supplier	Focus on supplier processes needed to produce the service	Focus on the functionality or the performance of the service	Focus on the economic value for the customer to be generated by the service

These authors argue that the scope of work for service providers can be specified in four different ways:

- Specification of the *inputs* that will be used by the service provider. In this situation the contract is aimed at describing the resources and capacities that will be used by the service provider to produce the required services. An example here is the HR manager who is looking for temporary labour for seasonal activities. The temporary employment agency will probably send the HR manager some curricula vitae of available people. Next the HR manager will make their choice based upon the information provided and some additional interviews. The contract is about making people available to the customer at a predetermined time period and at a predetermined rate. The contract states very little about what performance needs to be delivered by the persons that are actually hired.
- Specification of the *throughputs*, or the activities that need to be accomplished in order to produce the requested service. Based upon a general description of the work that needs to be accomplished, both parties agree on the activities that will be performed by the service provider. These activities are part of milestone planning. This type of contract is common when contracting for civil projects or buildings. Apart from the price, parties need to agree on a detailed project planning that contains a reasonable estimate of the number of employee hours taken and the materials that will be used for the project. The project planning includes time-based milestone planning for the project including the payments that will be made over time when a certain milestone has been achieved. The contract states very little about the functionality that a house being built needs to have for the principal, for example.
- Specification of the *outputs* that need to be generated by the supplier. Here, the buyer is explicit in terms of the results that need to be accomplished and delivered by the service provider. Axelsson and Wynstra (2002) make a distinction between output and outcome. Output relates to the functionality of the service instead of the activity itself. An example is a service contract for a technical installation. The contract can stipulate the maximum acceptable unplanned downtime as a percentage of the total operational time ('uptime') of a specific machine. The supplier, then, is responsible for maintaining a preventative maintenance scheme so that the unplanned downtime target is not exceeded. Although the customer will be interested in the details of the maintenance

scheme, they are probably more interested in the equipment's actual output. This output is monitored based on a number of key performance indicators (KPIs) that have been agreed upon. The functionality of the service is emphasized, i.e. keeping the machine running instead of focusing on how well the maintenance activities were conducted by the supplier. SLAs are an illustration of this way of specifying services.

- Specification of the *outcome* that needs to be generated by the supplier. Outcome relates to the economic value that is generated by the provider for the customer. Outcome essentially is the effect of the contractors' work on the final stakeholders of the service rendered. For example, when a buyer is contracting an agency for the production of a new television commercial, they specify the additional growth in revenues and brand awareness they want to achieve in the period during which the commercial will be broadcast. This agency will then be paid a percentage of the revenue growth for the services delivered. This type of contract does not specifically stipulate the inputs to be used nor the activities to be conducted by the contractor (throughput); rather it focuses on the intended output of the contractor's activities (i.e. commercial) and the direct outcome effect for final stakeholders (e.g. sales growth). This type of contract is usually referred to as a performance contract (refer to Memo 6.2 for an example).

Input-based and throughput-based contracts are usually referred to as classical procurement contracts, or behavioural contracts, as these contracts describe the intended behaviour of the contractor. Output-based and outcome-based contracts are referred to as performance contracts as they focus on the performance to be delivered by the contractor.

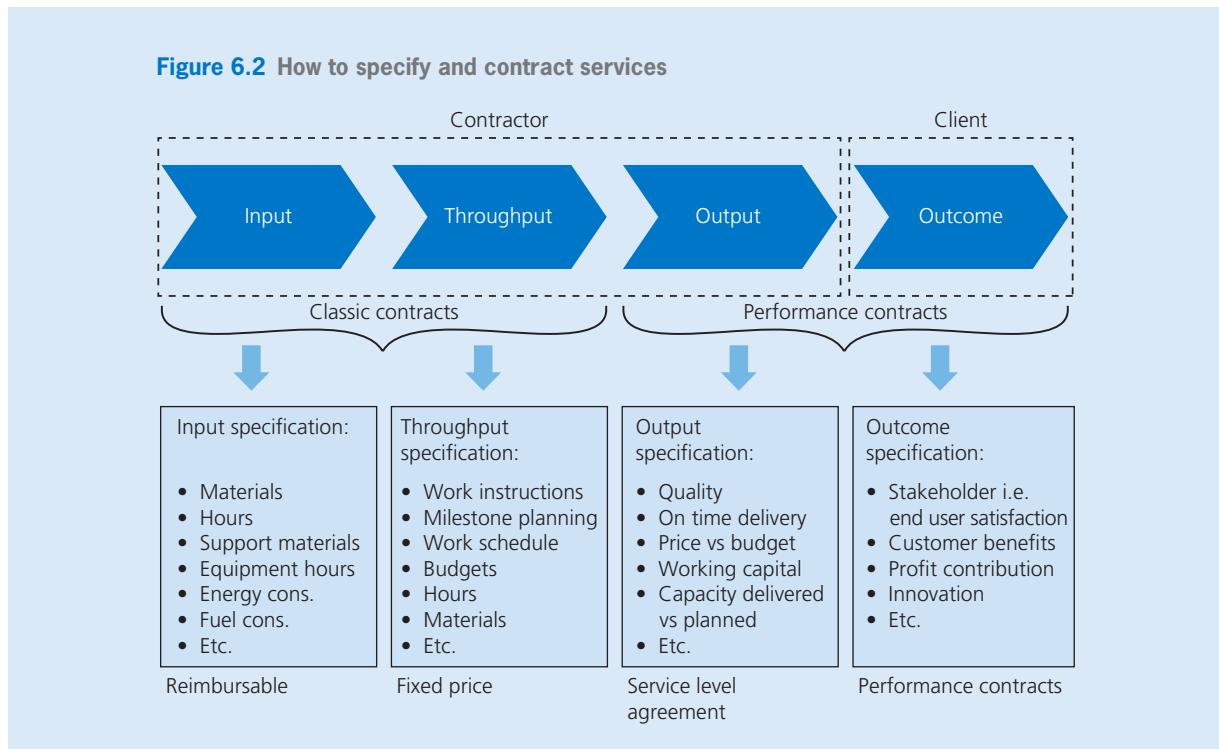
Memo 6.2

Contracting for road construction

When tendering for road construction, a Ministry of Infrastructure in a European country has different options. One is to go for a reimbursable contract. Here the contractor is allowed to charge all material cost and working hours, plus a percentage for general costs and administration and profit to the client, i.e. principal. Another option is to tender based upon milestone planning, which the contractor needs to submit. Here the contractor explains how they will prepare for the work, what activities will be related to mobilizing people and equipment, all preparatory work including preparing all permits and drawings, and finally the works planning. The principal will pay the contractor a prearranged sum after approval of each milestone. The principal could also opt for a performance contract that describes the output to be produced, i.e. a road with a certain length and width, the bitumen, i.e. tarmac that needs to be used, and the technical infrastructure (safety systems,

alarm systems) that need to be put in place. However, the principal could also go for an outcome-based contract which stipulates road availability enabling uninterrupted traffic per hour, 24/7 year-round. Such an outcome-based contract would require maintenance for a number of years to be conducted by the contractor. Payment will start only at the moment of opening the road and will include a payment per month to cover the contractor's investment only in the case of 100 per cent road availability. Penalties will be related to unforeseen malfunctioning of the safety systems and the length of traffic jams that may occur for whatever reason. This example shows that these four ways of contracting for services differ largely in terms of scope, specification, payment, and risks and liabilities incurred by both principal and contractor. Refer to Figure 6.2 for a schematic overview.





In many cases it is not easy to assess the total costs incurred when contracting for a specific service. Part of defining the service specifications is also that both buying organization and supplier agree on who will be responsible and accountable for what part of the expected output or outcome. If the quality of the service does not meet the expectations of the buying organization, it probably will hold the supplier responsible. However, a probable explanation for this might be a lack of communication and information, or insufficient preparations and instructions from the side of the buying organization. It is therefore necessary to be explicit about the expectations, roles and responsibilities of both parties to a fair degree of detail. A detailed project planning, with clear milestones that need to be accomplished within a certain timeframe by both buying organization and supplier, therefore needs to be part of the pre-contractual discussions.

The question is, of course, when should a sourcing manager opt for an input specification, when for a throughput specification and when for an output or outcome specification? Preferably, the sourcing manager should always strive for an output or outcome specification. The reason for this is that it allows the supplier more degrees of freedom to select the work methods that will suit them best and to organize the work in the best possible way. All of this should work out positively in terms of pricing, but also in terms of quality and flexibility. Moreover, the supplier is requested to include a certain level of performance, which is relevant when the buying organization seeks a performance-based contract. In general, performance-based contracts are largely preferred over contracts in which the supplier only commits to perform certain activities. Hence, the way in which the service is specified (input, throughput, output, outcome) is also decisive for the type of contract that can be used.

We could conclude that output/outcome specifications should be preferred over input or throughput specifications. This, however, is too easy a statement. From a procurement point of view, it is always very important to check whether a service provider is capable of delivering the required output or outcome. Think, for example, of Nedtrain, a specialist in train and railway maintenance, operating in the Netherlands.

For many years Nedtrain was very explicit in its relationships with cleaning companies on how to clean the trains' coaches and what cleaning materials to use. Some time ago the company started to explore whether it could use output specifications rather than input specifications in its discussion with suppliers. The company engaged in a discussion with its suppliers to have them commit to a certain level of traveller satisfaction. In this case the suppliers were willing to face the challenge. However, in many cases, it is doubtful whether suppliers would be willing to work in this way. One argument against this way of working is that traveller satisfaction with regard to the cleaning activities is dependent on many factors. Factors such as the general condition of the train, a seat that is worn out, the delay that the traveller has experienced or bad weather conditions, can all negatively affect customer satisfaction and the customer's perception of the train's interior. These kinds of externalities are difficult to influence for the supplier, which may prevent the provision of a consistent service quality. In general, the more difficult it is to specify the outcome and output of the service, the more difficult it is to arrange for a performance-based contract.

SELECTING SERVICE PROVIDERS

If the scope of a specific service cannot be determined, it will be difficult to define what qualifications a future supplier should be able to meet. The more intangible the service, the more time the buying organization will spend on prequalifying and preselecting the future service provider. In those cases, sourcing managers need to check supplier references and experiences of other customers thoroughly as well as the reputation of the supplier.

The prequalification will typically cover an assessment of the organization of the provider, its operational processes, its expertise and capacity, and the quality of the staff and management involved. In the case of an input specification the sourcing manager will probably be interested in certain certificates (or diplomas) that can be provided by the supplier. In the case of an output or outcome specification the sourcing manager will be much more interested in positive references provided by key customers. As discussed earlier, the sourcing manager will want to ensure that the supplier has sufficient capacity available at the moment the service needs to be provided. This is important for instance when contracting for call centre services. Here, it is important to ensure sufficient capacity, both in terms of quality and quantity, and the equipment to be used as well as other resources that are needed to deliver call centre services. By providing the supplier with the right information and instructions, the sourcing manager may positively influence productivity and performance. As a result, the sourcing manager can influence the operational costs of the supplier and hence the prices and the rates that are being charged. Suppliers for complex business services need to be selected carefully. In recent years an interesting approach has been developed to do just that. Memo 6.3 provides an introduction to best value procurement and vested outsourcing.

Memo 6.3

Selecting service providers using best value procurement and vested outsourcing

Best Value Procurement (BVP) was originally developed by Dean Kashiwagi, Arizona State University, USA. Based upon his research, he observed that individuals suffer from a lack of information and information processing capacity, which prevents them from obtaining an overview and structuring decision-making on complex topics. Information available is often subject to individual interpretations and perceptual differences. Information that is missing is usually compensated by the individual's limited experience and opinions. This may lead to a situation where decision-making is blurred, fragmented and not at all transparent, which results in mistakes, errors and wrong decisions.

The idea behind BVP is that when carefully selected, suppliers are to be considered as the specialist in their business. Therefore, in cases where the buying organization lacks essential knowledge, suppliers are the ones that are able to come up with the best solutions. Next, suppliers are best positioned to identify risks and problems that may prevent service delivery from being successful. BVP starts with the notion that there should preferably not be any difference between the supplier experts that do the acquisition, the design and the execution of the complex service. Preferably, the supplier experts that will actually be involved in delivering the (complex) service are requested to engage in discussions with the buying organization in the pre-contractual stage. When using BVP the buying organization presents a complex problem to be solved to a limited number of carefully selected suppliers, rather than submitting a set of detailed technical requirements that should be met by the suppliers. Then, prequalified suppliers are requested to propose a service solution (i.e. request for solution) within a predetermined (maximum) budget, which is communicated to the suppliers by the buying organization beforehand. Solutions that do not meet the maximum budget are not considered.

Suppliers are invited to explain their proposed solutions in in-depth interviews with representatives of the buying organization. Part of the discussion is a two-page risk assessment which outlines the key risks that the supplier considers important. After the discussions, the buying organization will further select the two most promising suppliers and will ask them to present a detailed proposal (i.e. solution and budget, including a more detailed risk plan). In larger projects where a lot of preparation is required from the supplier, the buying organization may offer to partially pay for the preparation of the final proposal. When discussing the detailed proposals, the originally submitted price will not be further discussed or negotiated by the buying organization.

In recent times, a lot of experience has been gained with this method in the construction industry in the Netherlands, with very promising results. In general, construction projects have a higher chance of being delivered within time and budget when contracted via BVP compared to traditional tender methods. Suppliers like to be challenged on their area of expertise, even the ones that do not win the order. Therefore, BVP seems a useful sourcing method for complex business services and projects.

A method that mirrors BVP is Vested Outsourcing, which was originally proposed by Kate Vitasek in 2012 at Vested®. In fact, Vested Outsourcing is organized around the same principles. This method also takes as a point of departure that suppliers should be considered the specialist in their business and that problems rather than detailed technical requirements and requisitions should be submitted to suppliers to learn from their insight and experience.

For more information about best value procurement and vested outsourcing, see the specialized sources at <http://pbsrg.com> and www vestedway.com.



CONTRACTING FOR SERVICES

When sourcing goods, it is fairly simple to assess what has been agreed upon contractually. It is also fairly easy to assess whether the supplier has lived up to the agreement. When both parties agree about the quality and quantity of the goods delivered, payment will follow.

When sourcing services, however, it is often not so clear when the contracted performance has been delivered by the service provider, the key question here being: when is the service delivered exactly in line with the expectations of the customer? What will happen if an architect delivers a design that meets the technical criteria of the customer but which does not match with the customer's personal taste? In such a case the contract probably will not give the answer unless it contains clauses that cover such a situation. In reality, it is almost impossible to formulate clauses that deal with all possible problems and misunderstandings that may arise with service contracts. The following suggestions can assist in the process of contracting for services:

- Specify the performance to be delivered by the supplier instead of the activities to be conducted.
- Describe when and where the service needs to be provided.
- Describe who would benefit from the service and in what way.
- Check reputation, expertise and qualifications of the supplier.
- Request the CVs of key personnel and make sure that personnel are available during the period in which service needs to be delivered.
- Analyze how the service process will be organized and check the quality system and training policy of the service provider, discuss potential threats and weaknesses, and, most importantly, the risks.
- Invite potential service providers to present a business case which is based on the scope of work.
- Check the cultural fit between your company and the company of the service provider.
- Aim for a performance-based contract, an SLA that includes critical performance indicators as well as a detailed work plan and time schedule.
- Agree on financial, personnel, technical and information resources to be made available by the buying organization.
- Prepare for detailed inspection and quality procedures.
- Discuss and agree on procedures for dispute resolution.
- Agree on performance-based payment schedules.
- Agree on an effective communication structure and make working arrangements.

When the service is to be delivered within the physical premises of the buying organization, sufficient workspace and office space should be provided to the service provider's technical staff. In many cases these employees need to get access to the company's internal information and administrative systems. A service contract, here, should cover the special arrangements that need to be made by the principal.

At the contractual stage, it is important to agree on what criteria will be used to assess the quality of the service provided by the service provider. Both parties need to agree on specific KPIs. These indicators are, as we have discussed earlier, a key component of SLAs. If the supplier meets the agreed service levels, immediate payment will follow. In a situation where the supplier is not able to reach the agreed service levels, they will be paid less. In order to make such a contract work, the buying organization needs to periodically report on the supplier's performance (or have the supplier do that) and discuss it with the supplier.

The post-contractual stage

Having agreed on the contract, the most important stage in the sourcing process is yet to follow. At this stage the buying organization and the service provider should actively collaborate to establish a successful service delivery. The interaction between buying organization and service provider is continuous in nature, as in the situation where internal activities have been outsourced to an outside service provider and in which service provider staff actually reside within the buying organization (e.g. transport and logistics, security services, catering services or cleaning services).

Here, it becomes clear how successful the sourcing activities have actually been. In reality, many problems emerge at this stage. It is not uncommon that during the contracting stage a lot of discussion takes place about what service to provide, how to organize for it, how to pay for it, etc. Apparently, the way in which the services should be executed receives less attention than it should do in the initial stages of the sourcing process.

An example is a company that has outsourced its IT services. The IT help desk is now operated by new staff that need to familiarize themselves with the internal IT processes of the buying organization. The new staff may, based upon their company's standard instructions, be stricter and more formal in responding to internal customer demands than in the old situation, leading to more paperwork and frustration among internal IT employees. It is only at the execution stage that it becomes fully clear how the IT help desk actually operates. Outsourcing a business process does not mean 'we do not have to pay attention to it anymore'. Although the supervision of the activity resides with the contractor, the buying organization still needs to manage the relationship. This requires different competencies and capabilities from the staff involved on the side of the buying organization. In general, it is wise to differentiate between the person who supervises the quality performance of services provided by the service provider and the person who monitors compliance against the agreed service levels. To do this, increasingly **contract managers** are put in place who need to secure contract implementation, often referred to as contract management.

During the implementation stage it may appear that KPIs and bonus/incentive arrangements have not been appropriately established. In the example of the IT help desk earlier, specific clauses may have been agreed upon about the uptime of the servers; however, nothing may have been said about internal customer satisfaction related to the IT help desk's ability to provide any necessary information and resolve customer issues. As would be expected, supplier behaviour is highly influenced by the KPIs that have been contractually agreed. In all likelihood, the IT help desk would immediately cut their support as soon as servers started causing difficulties and uptime goes down. Again, the buying organization needs to anticipate this type of problem at an early stage in discussions with a future service provider. It means having a clear and detailed picture of how the service, in reality, will be conducted.

Creating an effective link between the tactical sourcing process and the operational stages of contract execution is therefore extremely important. This requires that operational employees in the company are consulted at an early stage about how activities actually take place.

Contract managers

Responsible for selecting the right contract, contract negotiation and monitoring contract compliance by buyer and seller.

From the very beginning, a working relationship develops between the service provider and the buying organization. This relationship may be more or less intensive, be based on a higher or lower degree of integration between parties, be more or less business critical for the parties involved, and so forth. The relationship will develop at multiple levels between the organizations involved: at the operational level between the employees involved in the actual service delivery, but also at the management level, where the relationship and contractual arrangements will be periodically reviewed. Until now, little has been known about how these types of relationships develop over time, what their interrelationships are and what aspects essentially determine long-term success in service relationships (refer to Theory Snapshot 6.1 and Memo 6.4).

Theory snapshot 6.1

Triads and service deliveries

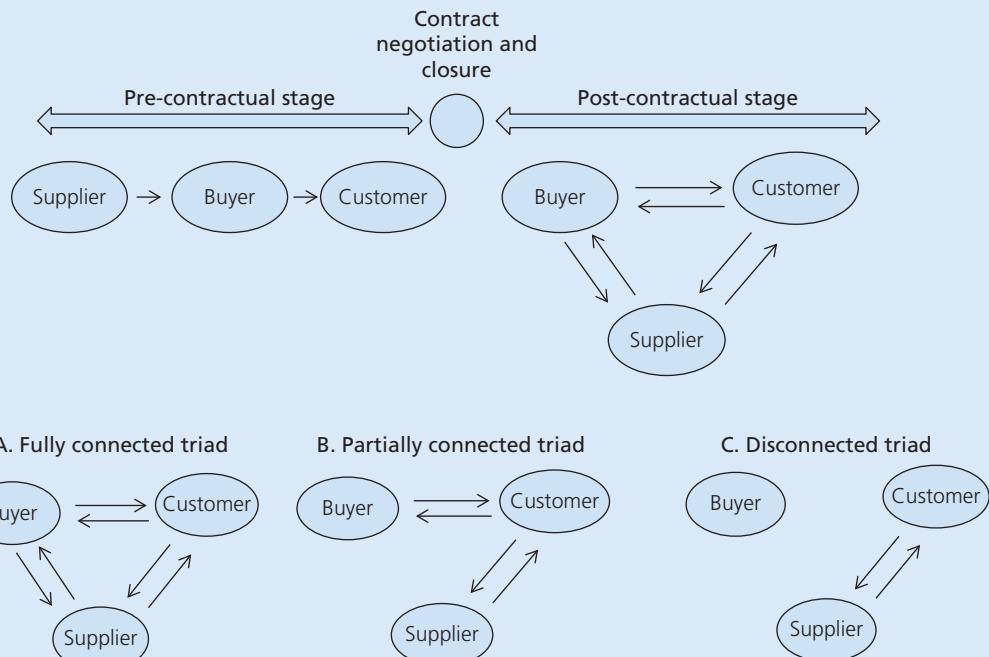
When buying services, a differentiation needs to be made between business-critical and non-business-critical services. Business-critical services are part of the company's value proposition to its customers. Think of an original equipment manufacturer (OEM) outsourcing its on-site maintenance for its customers of capital equipment to a specialist supplier. Or think about the outsourcing of logistics and transportation of consumer products to UPS or FedEx by Philips. In both cases, the service provider co-determines the customer satisfaction of the buying organization's customers. Business-critical services need to be contracted differently from non-business-critical services. Preferably, business-critical services need to be contracted through performance-based contracts in which the output, i.e. outcome of the service as delivered by the service provider, is specified and monitored. Performance rather than cost should be of primary importance in these types of relationships.

When contracting service providers for business-critical services, a problem occurs. This is due to the changing relationships in the post-contractual stage compared to the pre-contractual stage. In the pre-contractual stage, the relationship between the parties involved can be characterized as a chain of activities (refer to Figure 6.3). On behalf of their company, the buyer contracts the supplier to deliver services to the company's final customers. However, in the post-contractual stage these relationships change into a triad type of relationship. Before a contract is

signed, the buyer acts as a 'bridge' between the supplier and customer. However, when the contract has been signed, the suppliers increasingly position themselves between the buyer and customer and eventually may become the bridge. In the long term, the link between the supplier and the end-customers may become so strong that the buyer is more or less excluded from the triad. This phenomenon has been referred to as disintermediation (see Li and Choi, 2009; for an overview, see Wynstra et al., 2012, p. 17). In reality, different triad configurations may apply, ranging from fully closed triads to fully open triads, depending on whether relationships between the actors involved are firmly or loosely coupled.

When sourcing (business-critical) services one should be aware of this and take preventative measures to make sure that during the post-contractual stage, triadic relationships are firmly coupled. One way to do this is to define KPIs, in close collaboration with business and services management, to monitor the supplier's service delivery performance. Next, the buying organization should regularly sound out the end-customer's satisfaction with the supplier's service delivery. Finally, the buying organization should put professional contract management in place to make sure that the suppliers follow up on their contractual obligations. These are all measures to prevent the suppliers operating in their own interest, which would eventually take over the relationship with the buying company's customers.



Figure 6.3 Triad configurations in services delivery

Memo 6.4

Tensions between service suppliers and buying organizations

Measuring value and reducing complexity in services delivery is a prerequisite to driving results. However, it is difficult to measure the quality and value of services. The lack of a proper benchmarking tool is one of the major challenges facing procurement professionals. This may create a field of tension between the service suppliers and buying organizations. An example is the issue between the cleaning service suppliers and Philips which was widely reported in the Dutch press in 2012. The employees of the cleaning service providers went on strike, because their customers, such as Philips, cut back on cleaning

spend, whereas the workload was increased.

According to procurementleaders.com, the key to solving these issues is a focus on suppliers as partners. 'It is less about negotiating the price and doing the contract and it is more about managing the relationship and jointly identifying areas for improvement and doing a performance scorecard exchange.' However, stakeholder management and supplier engagement remain challenges. Philips is now increasingly focusing on this issue by means of its supplier development plan.



Involvement of procurement in sourcing services

From what we have discussed, it will be clear that, in general there is much room for improvement when it comes to sourcing business services. The first question in many companies today is: what services are sourced where, by whom and at what price? In order to obtain this information, procurement professionals need to team up with the internal customers of the service suppliers. Traditionally, procurement is involved in sourcing business travel, print services and courier services. As most of these services are of low importance, procurement involvement is high. This is different for sourcing highly important and/or business critical services, such as marketing services, 3PL logistics and ICT. Here, the functional departments (e.g. marketing, logistics and ICT) play a more dominant role. These types of services are often not sourced by the procurement department, but by the respective functional departments. Typically, these departments focus on service availability and quality performance and less on total costs. Also, functional departments may have long-term experiences with certain service providers, leading to close interpersonal relationships between employees on both sides. New business is therefore often awarded to a small inner circle of preferred suppliers, instead of to the best available supplier on the market.

In most cases the functional departments value their supplier relationships very much and hold the opinion that their value added cannot be stated in objective terms. In their perception, too much of a price focus will have a negative impact on the relationship with the supplier and, hence, on the quality of the service provided. This is why procurement professionals are usually only involved in the sourcing process when the contract is about to be put together and signed, which leaves no room for the procurement professional to challenge the performance specifications, set up proper supplier selection, propose alternative suppliers, define cost savings' potential, drive negotiations for better conditions and push for clear contractual agreements. As a result, procurement has limited opportunities to add value. The internal customer, however, may fear that the supplier's loyalty, flexibility and quality will be compromised through a more professional sourcing approach.

In order to solve this misalignment, procurement professionals should invest time in building up closer relationships with their colleagues from different functional departments who are acting as internal customers for the services suppliers. This is often referred to as *business partnering*. The goal here is to better align on cost, value and risk expectations, co-develop sourcing strategies for specific service categories and agree on mutual roles and responsibilities for sourcing and contract management.

How to team up with an internal customer is situation specific and depends to a large extent on the personality and expertise of the sourcing manager. Until now, no standard approaches to this challenge have been found. The best thing a sourcing manager can do is provide for superior transparency in terms of the spend volume in a specific sourcing category, the number of service providers the company works with, the contractual agreements that are in place and the actual supplier performance. This information will enable a sourcing manager to engage in a more factual discussion with the internal customers. In any case, the sourcing manager can only go as far with a sourcing strategy as the internal customer is willing to allow for.

If the expectations and the ways of working between the procurement department and internal customer departments are not aligned, friction between the parties involved will be the result. In these cases, internal departments will prefer to deal directly with

the supplier, instead of involving procurement. A sourcing manager who consistently seeks to act in the interests of their internal stakeholders and business partners will create credibility, allowing earlier involvement in the services sourcing process. Together they should focus on getting superior value provided by services suppliers for their money spent.

Summary

Services represent a growing share of economic activities in most European countries. Services also represent a growing share in the external spend of organizations, both in industry and government. Traditionally, services spend was limited to contracting for facility services. Today, many service providers directly affect the primary activities in the value chain of buying organizations. As a result, these service providers become critical for the buying organization. This is why professional sourcing of services has become more important. A differentiation between business-critical and non-business-critical services is recommended. Both categories demand a specific sourcing and contract management approach.

Professionalizing services sourcing is far from simple. Many companies struggle to control their fragmented services spend. Another problem is that services are highly differentiated and diverse in nature. As a result, it is not easy to create a good overview of what is spent by the company on what kind of services and by whom.

To be successful, sourcing managers require specific skills and expertise to forge close collaboration with functional experts and business partners across the company. Usually, these internal customers are much more knowledgeable about the service that needs to be sourced. Moreover, internal customers often have stronger personal relationships with the service providers, since service delivery requires close collaboration between the parties involved. Procurement represents the strategic and commercial interests of the buying organization and may be more factual and objective in dealing with service providers. This is why the relationship between the internal customers and the procurement department is often controversial, which may lead to both challenges and opportunities for the suppliers involved. In getting a better grip on services expenditures, procurement needs to be primarily ‘service-driven’ rather than ‘cost-driven’.

Sourcing services in a professional way represents significant challenges. First, deciding on the specification of services may take much more time than when specifying for goods. Here, sourcing managers may choose to specify services based on inputs, throughputs or outputs/outcome. Inputs relate to the resources needed to produce the service, whereas throughputs relate to the activities needed to produce the service. As we have seen in this chapter, a specification based on output or outcome allows suppliers to tailor their solutions to their specific expertise and capabilities. Second, since the quality of the services provided may be embedded in unique human expertise and capabilities, it is much more difficult to decide on objective selection criteria. This is also why, especially for knowledge-intensive services, suppliers are sometimes very hard to compare.

When contracting for services, specific arrangements need to be made relating to the expected performance, price and what to do in case of service delivery failures. Using SLAs stimulates internal customers to explicitly express the results they expect from contracted services. KPIs can be used to check predefined service levels and, hence, may provide for an objective reporting of actual supplier performance.

In general, these KPIs lead to a better understanding by both the buying organization and service provider. They facilitate discussions on where to improve service levels. They also allow for the application of penalties and incentives in contracts to stimulate service providers to perform better.

Assignments

- 6.1** Traditionally services and goods sourcing differ in four aspects. What are these aspects and what is the relevance of each for services sourcing?
- 6.2** Four ways to specify services have been described in this chapter. How would you apply each of these to the sourcing of cleaning services (offices) and also to consultancy services?
- 6.3** Buying marketing services is usually done by the marketing department. You are recruited as a sourcing manager for marketing services. You reside within the procurement department. What would be your approach to professionalizing the sourcing of all marketing services?

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7

Contracting and contract management

Learning objectives

After studying this chapter you should understand the following:

- The perspectives that can be used to manage contracts in complex project settings.
- The different elements of the contracting process.
- How to identify and overcome opportunism in contractual relationships.
- What contract models exist and when to apply them.
- How to decide about different pricing and payment mechanisms for contracts.
- Contract management.

Introduction

This chapter deals with **contracting** and **contract management**. We position this chapter in the context of complex projects. When specification setting is complex or when it involves innovative or bespoke products (e.g. heavy construction equipment, tailor-made software) or services (e.g. industrial maintenance, strategic consulting), this results in higher risks for the buying organization. In these cases, simple buying is no longer sufficient. Instead, procurement managers need to go through all six different steps of the procurement process model outlined previously. In particular, more attention should be given to contracting and contract management. Projects differ in terms of complexity. Large projects, such as the construction of a new subway line in Amsterdam in the Case Study that follows, require decision-making among a wide variety of stakeholders, due to their technical complexity and financial risks. Also, procurement managers should have a good understanding of the project goals and objectives and the intentions of all stakeholders involved. Preferably, procurement managers should already be involved in the pre-contractual stage. This stage includes a feasibility study, initial design, engineering, construction design and tendering. Next, procurement managers should support or lead the contract negotiations and contract closure. Finally, they should follow up and manage the contract in the post-contractual stage to make sure that all work is executed according to what has been contractually agreed.

Contracting Engaging in contractual relationship with one or more parties. After specification and supplier selection, it is the third stage of the sourcing process.

Contract management The process that ensures all parties comply with a contract and fully meet their obligations.

Case study

What happened at the Amsterdam subway project?

In April 2003 work started on one of the most challenging projects ever undertaken in the Netherlands: the construction of a new subway line in Amsterdam. This new line would connect the northern part of the city with the southern part and cover a distance of 9.7 kilometres. A complication was that the construction work needed to be conducted 40 metres under the old city centre. As the soil of Amsterdam is very weak, many disasters were forecast before the work commenced. And many of those disasters actually happened. One of the major incidents was the damage to six historical houses at Amsterdam's hotspot, the Vijzelgracht. In addition, as a result of the construction work, the owners of another seven historical buildings needed to leave their properties for a considerable period of time. Of course, the costs of the damage to their properties were claimed from the contractor and the city of Amsterdam, resulting in complex court cases. At the time of writing, these cases have still not been settled.

These and other problems caused significant delay, resulting in a total construction time of 14 years instead of the anticipated 8 years. In the meantime, the original budget that was anticipated in 1996 of €678 million, increased to a staggering €3.1 billion. Altogether, these problems ended the careers of many promising local politicians and city officials.

As in many of these cases, the reasons underlying the problems of this prestigious construction project are multiple. First, the city of Amsterdam's project office decided to apply many civil engineering techniques that were new to them. Second, in order to save costs, the project office decided to work with different contractors for different parts of the project, instead of selecting one main contractor. As a result, many conflicts and disagreements arose between the different (sub)contractors. The project office had to manage the relationships between more than 45 contractors and suppliers. Third, the fact that many contracts with contractors were open ended was a prime reason for the extreme budget overruns. Fourth, for cost reasons, the project office decided not to insure the project. As a result, all risks for this complex project work were to be carried by the city of Amsterdam. Finally, it appeared that a sound risk analysis for some critical parts of the project was totally absent. This was the reason why the project office was caught out by some of the technical issues.

Although many of the problems were attributed to technical issues, the major cause of most of the problems was assigned to significant failures in project and contract management. The project office was operating without a clear mandate from Amsterdam city council, which obstructed efficient decision-making. In the relationship with most contractors there was no clear line of command. Since the authority of the project office was debated within the city, different departments, who were responsible for submitting permits and licences, went their own way.

The important lesson from this case study is that complex construction projects require professional project management, procurement and contract management. Without these activities, these projects are certain to fail, often at high cost to the taxpayer.

Contracting for projects happens in many industries and relates to different activities. Projects may be initiated by both public and private organizations. Governments in many European countries are major contractors in large infrastructural projects, such as highways, ports, bridges and other civil engineering works, while large companies may contract for investment goods, manufacturing equipment, IT systems, buildings and infrastructure.

In this chapter, we will take construction projects as the prime point of departure for our discussion on sourcing and contract management for projects because of their technical complexity, financial risks and complex decision-making. As a result, contract management in this sector in many countries has developed into a specialist

area with a high degree of sophistication. Contracting practices from this sector may be easily transferred to other sectors and projects. Given the scope of this chapter we will use the term contractor rather than supplier.¹ We will limit our discussion to the private sector.

One of the biggest challenges in contracting for projects is to overcome opportunism, i.e. a situation where each contract partner primarily serves their own self-interest. This subject is explored in agency theory, which is discussed in the next section. Thereafter, we will discuss some problems related to contract management. To solve these problems contract partners can use different perspectives, ranging from a dyadic perspective to a network perspective. We will discuss the importance of choosing the right perspective when contracting for projects. Next, we will discuss in depth three basic pricing and payment mechanisms underlying contracts. As projects usually take a long time to execute, arrangements on how to finance and receive payment for project activities are of the utmost importance. The pricing and payment mechanisms are reflected in different contract models. The most important contract models are discussed and examples provided of how they are implemented.

Since most contracts cannot be executed by a single company, subcontracting has developed into a specialist activity within contracting for projects. Therefore, we will discuss how to engage subcontractors and suppliers for projects. The chapter concludes with an overview of the contracting process, discussing different steps in contracting, as companies move from an initial project idea to full completion and delivery.

Contract management and contracts: agency theory

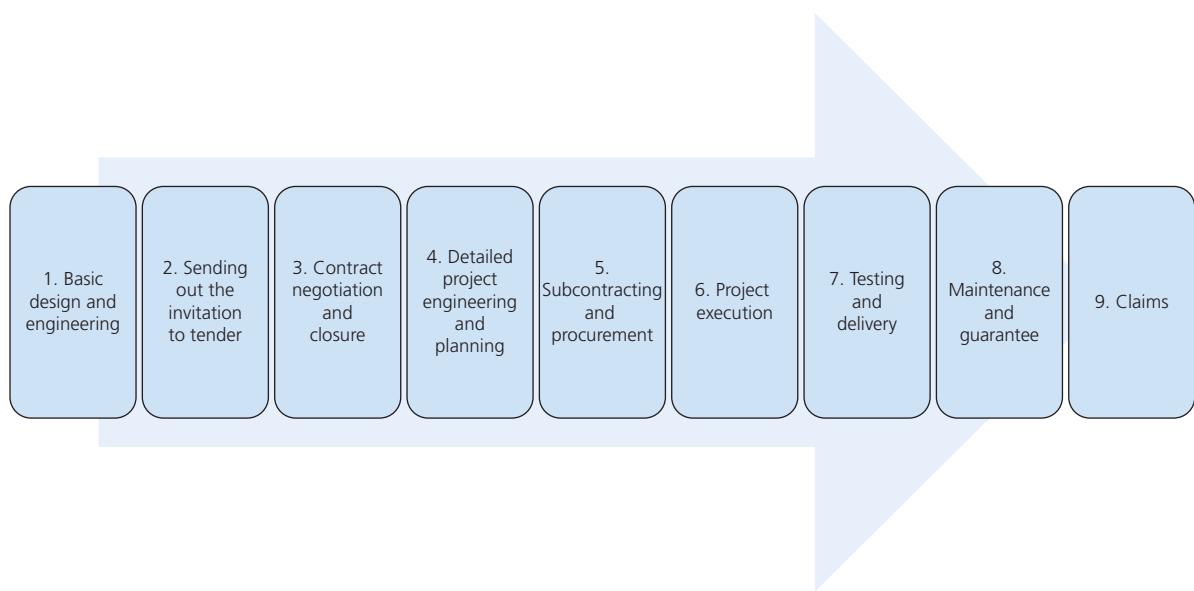
Commercial parties that operate together in value chains are linked through contracts. Over time contracts have become more complex; they have also become more varied. Today, different contracts are used for different situations and different objectives. Contracting and contract management are about deciding on the right type of contract for the product, service or project to be delivered. Next, it is about managing the contract after contract negotiation and closure.

Here, we define contract management as: 'The process that ensures that all parties to a contract fully meet their obligations, in order to satisfy the operational objectives of the contract and the strategic business goals of the customer.'² This definition warrants more discussion. The definition refers to contract management as a process which is aimed at successful and profitable product, project and services delivery. There are three **contract management stages**: the pre-contractual stage, the contract negotiations stage and the post-contractual stage. The three stages are interrelated: problems that have occurred in the pre-contractual stage between contract partners may surface during project execution and delivery. Therefore, it is important to be aware of the full contracting process when engaging in a contract (refer to Figure 7.1).

Contract management stages The three stages of contract management are: the pre-contractual stage, the contract negotiations stage and the post-contractual stage.

¹Contractors are firms that accomplish large investment or construction projects. Subcontractors are firms that conduct activities on behalf of the contractor. Both terms are used in international contracting and in the construction industry. In this chapter, we will use the terms subcontractor and contractor as an equivalent to supplier.

²Obtained from various sources on the internet (see www.cips.org, <https://consultations.rics.org> and www.business.govt.nz).

Figure 7.1 The contracting process: key elements**Bounded rationality**

Different contractual perspectives due to incomplete information and self-interest.

The definition also refers to the obligations of both parties, which should be fully met. Obviously, it is difficult to put all obligations in writing. Parties are subject to what is called **bounded rationality**. This refers to the fact that each party does not have complete information and will perceive the transaction predominantly from its own perspective. As a result, parties are not able to specify all obligations and actions in the contract. As contracts differ in terms of complexity, their outcome may be more or less predictable. Therefore, a good contract will allow for specific arrangements, i.e. contract clauses on how to change the contract when, during the course of project execution or services delivery, circumstances change.

The final aspect is that a contract not only focuses on product or services delivery – a good contract also takes into account the goals and objectives of the (end-)customer. The end-customer may in many cases not be the contractor's contract party. In the case of sourcing IT software, the IT department may be the software provider's direct contact point. However, the people who need to work with the IT solution represent, in fact, the actual users, i.e. the internal customers. When contracting an IT services provider, the contract should have clauses that arrange for end-user satisfaction, which should be created by the IT services provider. Or, as another example, in the case of dredging for a new port, the actual buyer may be the port authority. However, the final customer may be the city (or country) which has an economic interest in having the new harbour completed as soon as possible in order to stimulate economic growth. In such a situation, both the buyer and the contractor should have one common interest: to jointly serve the interests of the city's council. Later in this chapter we will discuss different perspectives from which contracts may be considered.

Agency problem

Conflict of interest between buyer and seller due to conflicting goals, information asymmetry, risk allocation and moral hazard.

A major problem that underlies contract management is how to transform a conflict system into a co-operative one. In any commercial deal, parties need to overcome conflicting interests. Usually, the main interest for the buyer is to pay as little as possible for the job to be done. However, the supplier's main interest is to gain as much money as possible from the assignment. This problem is known in academic literature as the **agency problem**. Essentially, the agency problem finds its origin in the risks that parties face when collaborating. After contracting, the parties find out that each of them has

different interests, goals and objectives. Next, each party will experience some asymmetry in terms of contribution to the collaboration.

Agency theory addresses this problem (refer also to Theoretical Snapshot 7.1). It relates to all situations where one party (the client)³ delegates work to another (the agent), who performs that work (Eisenhardt, 1989). Agency theory is concerned with resolving problems that arise in commercial relationships, which are: (1) the conflicting goals of the client and the agent (goal incongruence); (2) the fact that the client often has insufficient knowledge about how the agent will act to perform the work (information asymmetry); (3) the fact that contract partners do not want to assume risk and want to shift risk to the other party; and (4) moral hazard, the fact that the contractor could behave opportunistically and not align with the client's interests.

Theory snapshot 7.1

Principal-agent theory (Agency theory)⁴

This economic theory describes what will happen if a principal delegates work to another person or party (i.e. agent), for which the other party gets paid by the principal. Take the owner of a company who wants to retire and intends to delegate the management of their company to a professional manager. Immediately some concerns may arise, such as how to make sure this manager will manage the company as their predecessor did or even better; how to prevent this manager from unduly taking advantage of their position; and, given the job and responsibilities, what would be a fair level of remuneration?

When applied to procurement, agency theory explains what may happen when a buyer commissions work or services from an outside supplier (contractor, service provider, consultant). Agency theory argues that in such a situation parties may suffer immediately from four types of problem:

- 1** Conflict of interest. This relates to the commercial aspects of the relationship. Usually, it is the buyer who wants to spend as little money as possible, whereas the supplier wants to receive as much money as possible for their work. Typically, this conflict of interest is solved through negotiation.
- 2** Risk allocation. Depending on the complexity and type of work or services at hand, more or less

risk may be involved.

Risk relates to known and unknown factors that may negatively affect the outcome of the relationship. Important aspects of risk are the likelihood (i.e. chance) that a factor may happen and the impact of that factor on the outcome of the relationship. Usually, the buyer wants to exclude risk and delegate this as much as possible to the supplier, whereas the supplier intends to do the same.

- 3** Information asymmetry. Usually, parties suffer from a large information asymmetry. The buyer may communicate their needs to the supplier through a request for quotation (RFQ) which describes the product, service or solution to be delivered. However, in complex service settings such an RFQ is rarely complete. The supplier has a duty to investigate what purpose the buyer has in mind when submitting the RFQ. That may be much more than has been put on paper. The supplier may assume that the buyer is aware of what it takes to deliver the product or service and that they are aware of the problems and uncertainties that may occur, which may not be the case at all.



³In this chapter, we will use the terms client, principal and buyer interchangeably, i.e. the party that summons work from a supplier, the contractor, against a commercial fee.

⁴For more information, read the article from Eisenhardt (1989) in *The Academy of Management Review* (Volume 14, Issue 1, p. 57–74).

Information asymmetry may only be overcome if both parties are able to challenge their assumptions and carefully listen to each other. Essential is that both parties have a good understanding of the interests of the other party, i.e. why each party wants to engage in a commercial relationship.

- 4 Moral hazard. This problem occurs when a party is not liable (i.e. accountable) for the (negative) outcomes of their actions and behaviour. A supplier who is paid per hour has little incentive to operate as efficiently as possible. As a result, the buyer may end up with an unexpectedly high bill! Moral hazard is also visible in companies where at the end of the year departmental managers spend

the rest of the budget to avoid receiving a lower budget the following year.

Although always present in commercial deals, these four problems are paramount in complex service settings where solutions are to be obtained from specialist suppliers and where for buyers it is difficult to assess the abilities and skills of the people that will be put to work. Usually, these problems can only be overcome through excellent communication throughout all sourcing stages (incl. contracting and contract management), a clear interest in the concerns of the other party, a perfect relational fit, and strong interpersonal and institutional trust. Sourcing complex services and solutions is therefore totally different from sourcing off the shelf products!

Behaviour-oriented contracts Specify how the agent, i.e. contractor, should deliver the work.

Outcome-oriented contract Specification of desired outcomes of contractor work.

Agent opportunism Situation where agent will act primarily out of self-interest.

Moral hazard Risk that both contractual parties will primarily pursue their own interest.

Conflict of interest Buyer wants to pay as little as possible and seller wants to charge as much as possible.

The problem is that the client cannot verify whether the agent will behave or has behaved properly. The main focus of agency theory is on how to determine the most efficient and effective contract between parties who differ in terms of risk-aversion, self-interest, bounded rationality, information, effort and experience. Agency theory differentiates between two types of contracts: (1) **behaviour-oriented contracts** versus (2) **outcome-oriented contracts**. Behaviour-oriented contracts are contracts that specify how the agent should act in order to deliver the work that is contracted for. Outcome-oriented contracts, or the narrower equivalent performance-based contracts, are a contracting mechanism that allows the customer to pay primarily when the firm has delivered outcomes, rather than merely activities and tasks.

It is assumed that outcome-based contracts, in general, are more effective in curbing **agent opportunism**. The argument is, as Eisenhardt (1989, p. 60) argues, that such contracts co-align the preferences of agents with those of the client because the rewards for both depend on the same actions and, therefore, the conflicts of self-interest between client and agent are reduced. A second proposition is that information also curbs agent opportunism. The argument here is that since information systems inform the client about what the agent is actually doing (i.e. supplier performance monitoring), they are likely to reduce agent opportunism because the agent will realize they cannot deceive the client. This last aspect is often referred to as **moral hazard**, i.e. the chance that the agent in the post-contractual stage will deliberately act to primarily serve their own self-interest, against the client's interest. As we will see in this chapter, different contract models address these agency problems in different ways.

Conflicts of interest between buyers and suppliers are in most cases dealt with by negotiation. Prior to the negotiation, each party will consider its interests, what it wants to get out of the negotiation (maximum versus minimum position) and what tactics it will use to attain its goals. Negotiation may be an effective co-ordinating mechanism for less complex, one-shot deals. However, for more complex and risky projects, where

commercial parties will be engaged for a long period of time, other mechanisms may be needed. Parties should avoid the situation where objectives are not jointly consistent (**conflict system**). The challenge is how to transform a conflict system into a co-operative one in which individuals act rationally in the name of a common objective. A conflict system is one in which parties have objectives that do not concur; it mediates in this transformation through exchanges and other interactions between parties. A **co-operative system** is one in which parties act rationally in the name of a common objective. Conflict systems can arise through bounded rationality (participants would like to act rationally but fail to do so) and/or opportunism (participants try to optimize their position at the expense of others).

Below we will discuss the different types of contracts in a fair degree of detail. First, a difference will be made between three basic pricing mechanisms: **fixed price contract**, **reimbursable/time and materials contracts** and **unit rate or charter contracts**. Next, we will also discuss different contract models which are covered by international standard contracts. Our discussion of contract models will include: construction contracts, design and construct contracts, engineer-procure-construct (EPC) contracts, design-build-finance-maintain (DBFM) contracts, engineering contracts and subcontracts. Most international standard contracts (such as FIDIC and LOGIC for the international construction industry) cover these contract types.

Conflict system

Contractual relationship where parties pursue different objectives.

Co-operative system

Parties act rationally in the name of a common objective.

Fixed price contract

Contractor agrees to work based on a fixed sum.

Reimbursable/

time and materials

contract Contractor agrees to work based upon compensation of all actual costs incurred plus profit margin.

Unit rate or charter

contract Contractor receives a fixed sum per unit of work completed.

The contracting process

Contracts may go through different stages and may have different lead times. In reality, the stages that may be identified in the contracting process are a pre-contractual stage, a contractual stage, contract execution and a post-contractual stage. (refer to Figure 7.1 earlier in this chapter). We will discuss each of these in turn next.

PRE-CONTRACTUAL STAGE

1 Basic design and engineering. This stage includes the activities which are required to arrive at a technical specification for the project. Usually, a wide range of activities is necessary, starting with a feasibility study of the project, a functional design and a basic design, which ultimately may result in a detailed project description and technical specifications. These technical specifications and a draft contract will be part of the tender documents which will be sent to the prospective contractors. An internal budget estimate at this stage will be available to compare the bids gained from contractors in the next stage.

Basic design and engineering Activities needed to develop technical specification of the work.

2 Tendering. At this stage the buyer communicates the future project to the market. Private companies have more degrees of freedom in doing so than governmental institutions. The latter need to satisfy all kinds of public interests and national or local policy, including opposition from leading politicians. In Europe, public institutions are bound by the European procurement directives that prescribe how to engage for the delivery of works and goods to external parties. Contractors should be allowed sufficient time to prepare their proposals, calculations and risk plans including contracting their subcontractors, service providers, suppliers and vendors.

Tendering Activities needed to select a contractor for the work based upon comparing competitive bids.

CONTRACTUAL STAGE

3 Contract negotiation and closure. Most bidders will not make it to this phase. Based upon a number of competitive bids, the buyer will preselect one or two contractors with whom they are going to negotiate. Contract negotiations will follow after having made an agreement on the base price. Such contract discussions can be lengthy, detailed and tedious. This stage results in the contract, which will serve as a basis for the future collaboration.

CONTRACT EXECUTION

4 Detailed project engineering and planning. After landing the contract, the contractor's engineering department will take care of detailed technical specifications and drawings. Based upon the detailed engineering, budgets are prepared for the hours that will be spent, the materials and material volumes that will be needed and the subcontractors that need to be hired. This stage is a crucial project phase. In many cases unexpected technical challenges need to be solved, for which client approvals are needed. Next, government permits need to be acquired, which also may take more time than planned. As a result, preparing the technical specifications and project planning will require much more time than anticipated, while the delivery date of the work will not be changed. This explains why project managers and their supply partners are often faced with a significant time squeeze, even at the beginning of the project.

5 Subcontracting and procurement. As soon as the agreement has been reached on the main contract, the agreements with the subcontractors and materials suppliers should be finalized. Here, the contractor has different options: (1) they could choose to have a back-to-back agreement to make sure that all major performance clauses of the main contract are mirrored in the contracts with subcontractors and suppliers; (2) they may choose to go for the best competitive bid, selecting the subcontractors and suppliers on the lowest price possible; or (3) a mix of the previous options.

6 Project execution. Usually, project work is commenced before all contracts have been finished. Since the construction industry is not operating in an ideal world, variations, i.e. changes in the original contractual agreement, are a fact of life. These need to be discussed, agreed and documented. Smaller disputes and conflicts need to be dealt with on a day-to-day basis.

7 Testing and delivery. As the project moves beyond its major milestones, work needs to be approved by the buyer or their representative/engineer. This may take time depending on availability of staff, reports, etc. Payment schedules need to be managed in line with the project milestones, which, in reality, is quite a challenging task.

8 Maintenance and guarantee period. After delivery of the work, the contractor and suppliers remain liable for defects and failures.

POST-CONTRACTUAL STAGE

9 Claims. Long after the project has finished, legal counsels and lawyers may be busy for years to settle claims from the buyer and/or (sub)contractors. Depending on the outcome of the legal conflicts, a project profit may turn into an unsuspected deficit.

The concept of the contracting process is core to understanding contract management. The different stages of the contracting process cannot be considered in isolation. Every step of the process provides the input for the next step. Problems that may occur in one step of the process can only be understood if what happened in the previous stages is recognized. For practical reasons some buying organizations make a differentiation between the pre-contractual stage, the contractual stage and the post-contractual stage. The pre-contractual stage is dealt with by business managers, engineering managers and cost analysts. Contract negotiations are mainly led by directors and lawyers, supported by procurement managers. When the contract is launched, it is handed over to the project organization, i.e. project manager and contract manager, often without a proper and detailed briefing. Quite often, project managers are confronted with projects that technically can barely be executed and the profitability of which is highly uncertain. Depending on their complexity, operational problems can occur during execution of the work, resulting in disputes and conflicts with buyers and subcontractors. Having finished the project, these problems are handed over to the legal counsels and lawyers, who can be busy working on them for years after.

In order to solve the interface problems that, by definition, are related to the different contract stages, some companies have adopted the practice of involving the intended project and contract manager during the pre-contractual stage.

Problems in contract management

Realizing a complex, successful project is a far from simple task. In a study by Van der Puil and van Weele (2014), contractors of large construction projects reported the following issues in their relationships with their clients:

- Misalignment of objectives between client and contractor. When signing the agreement, parties may show enthusiasm and drive for accomplishing the work. However, as work progresses, the client imposes extra requirements on the contractor which they do not want to pay for.
- The client is lacking sufficient knowledge and expertise. Many international companies and large governmental institutions have focused on their core activities. Non-core activities have been outsourced to specialist providers. As a result, the knowledge and expertise with regard to specific design, engineering and construction solutions and techniques have suffered. In such situations technical requirements are often unclear, while the client has engaged a range of consultants and/or interim managers who interfere, and the contractor is overwhelmed with extra work resulting from an overload of detailed questions.
- Active involvement of engineering and other consultants. Often, clients require approval for (parts of) the work from specialist engineers and consultants. In many cases these engineers and consultants operate at a high level of detail in the relationship with the contractor, since every problem they might find will lead to extra work – and a higher fee for them. Depending on the arrangements made between the consultant and the client, and more specifically on their risk allocation model, consultants may represent an important inhibiting factor for successful project completion.

- Contract management. Many large organizations (e.g. oil companies and the chemical industry) hire specialist contract managers to deal with the contractual side of the relationship with their contractors. In most cases these contract managers are rather business-like in their proceedings, i.e. what has not been agreed contractually will not be discussed and compensated for. Many project managers in the construction industry, who were used to solving issues on a personal basis with their client, are often surprised by this and have had to get used to this new, often direct and business-like approach.
- Inefficient decision-making. In large organizations and governmental institutions mandates and the authorities with regard to decision-making are not clear. The contractor is confronted with staff that are under-qualified and have no mandate to act. As a result, decisions with regard to suggested scope, planning and cost changes are often postponed and delayed; however, the project completion date remains unchanged. This is why project managers are often suffering from time pressures.
- Frequent scope and planning changes. Certainly in complex projects, the client becomes aware of some flaws in the design during the course of the project and wants to change the specifications. This may not only happen in construction contracts (where the client is responsible for the detailed design) but also in design and construct contracts (where the contractor is also responsible for the design). In the latter case, this may lead to a discussion about the responsibilities and liabilities of contract partners, which may hamper the technical completion of the project.
- Misunderstanding of what has been agreed. At the time of completion the client has a different interpretation of what should have been accomplished than the contractor. The contractor may have accomplished the project according to the detailed technical specifications. However, the client may be of the opinion that the construction is deficient in terms of functionality and that extra work needs to be done by the contractor to solve this.
- Payment problems. Some contractors report that they spend about 20 per cent of their time making the client pay for work that has been delivered. Most clients require extensive evidence that the actual performance has been delivered. However, providing such evidence in unequivocal terms is often troublesome. As a result, the contractor may end up with severe cash flow problems.
- Local political pressure. Pressure from stakeholders may emerge with whom the contractor has no contractual relationship at all. Action groups or pressure groups may, unexpectedly, influence a smooth execution of the project.

These examples illustrate that successful project completion is far from simple. As a result, projects usually suffer from large budget overruns and scheduling delays (for example, see the case study on the Amsterdam metro line at the beginning of this chapter; see also Flyvbjerg et al., 2003). Project management and contract management today require a thorough understanding of the risks and liabilities of the contracts used. Clients increasingly need formal evidence that work has been delivered and that quality requirements have been met before making any payment. This calls for excellent project administration. For an example, refer to Memo 7.1.

Memo 7.1

Oracle forgets to terminate rental contract

Oracle, the US-based global software giant, until recently did not pay much attention to contract management. Its administrative systems did not indicate the expiration of the date to terminate a rental contract for 6000 m² of office space in Amsterdam. The rental rate amounted to about €1.5 million annually. The office was not used for a number of years. The rental agreement stipulated that the contract would be automatically continued for a period of five to ten

years unless Oracle terminated the contract in writing. As Oracle neglected to do this, it had to pay for another rental period. What exacerbated the case was that at the time of renewal, prices of real estate in Amsterdam were plummeting. The contract did not have a clause such that if the real estate market situation were to change, this would be reflected in the contract price.



Perspectives on contract management

Whatever contract is made between the parties involved, contracts may be perceived from different perspectives. Four such perspectives are (refer also to Figure 7.2):

- **Dyadic perspective.** Here, contract parties are limited to the buyer and the seller. When negotiating the agreement, both parties assume that they can act rather independently from other parties in the sector in which they operate, and/or the value chain to which they belong. This perspective applies when parties allocate all risks among themselves and think that all problems related to their agreement need to be solved by themselves.
- **Supply chain perspective.** Here, contract parties are aware, when negotiating the agreement, that the completion of the work will depend largely on the contribution of contractors, their subcontractors and other suppliers in their supply chain. As a result, key subcontractors and suppliers may be consulted when preparing the contract, or may even be involved in the contract negotiation itself. This happens in the case of so-called back-to-back agreements, where the major conditions of the contract between the client and the supplier are translated one-to-one to the contracts with subcontractors and suppliers further up the supply chain. The supply chain perspective usually emerges in projects where major supplies (such as steel piles, pile sheets or prefabricated concrete elements for offshore windparks) or specific supplier capacity and expertise (design, special moulds for concrete elements or telemetry) are key to the success of the project.
- **Value chain perspective.** When adopting the value chain perspective, the buyer, contractor, subcontractors and suppliers are aware that they have one common interest: to jointly serve the current and future interests of the end-user, i.e. the client. All contract parties are aware that they may influence the project results and are mutually interdependent. As a result, parties will engage in close collaboration and information exchange. This perspective usually results in gain- and risk-sharing agreements, where payments are made based upon the actual project results and outcome.

Dyadic perspective
Contracts are closed based upon interests of buyer and seller only.

Supply chain perspective
Contracts are closed based upon recognizing interests of key supply chain partners.

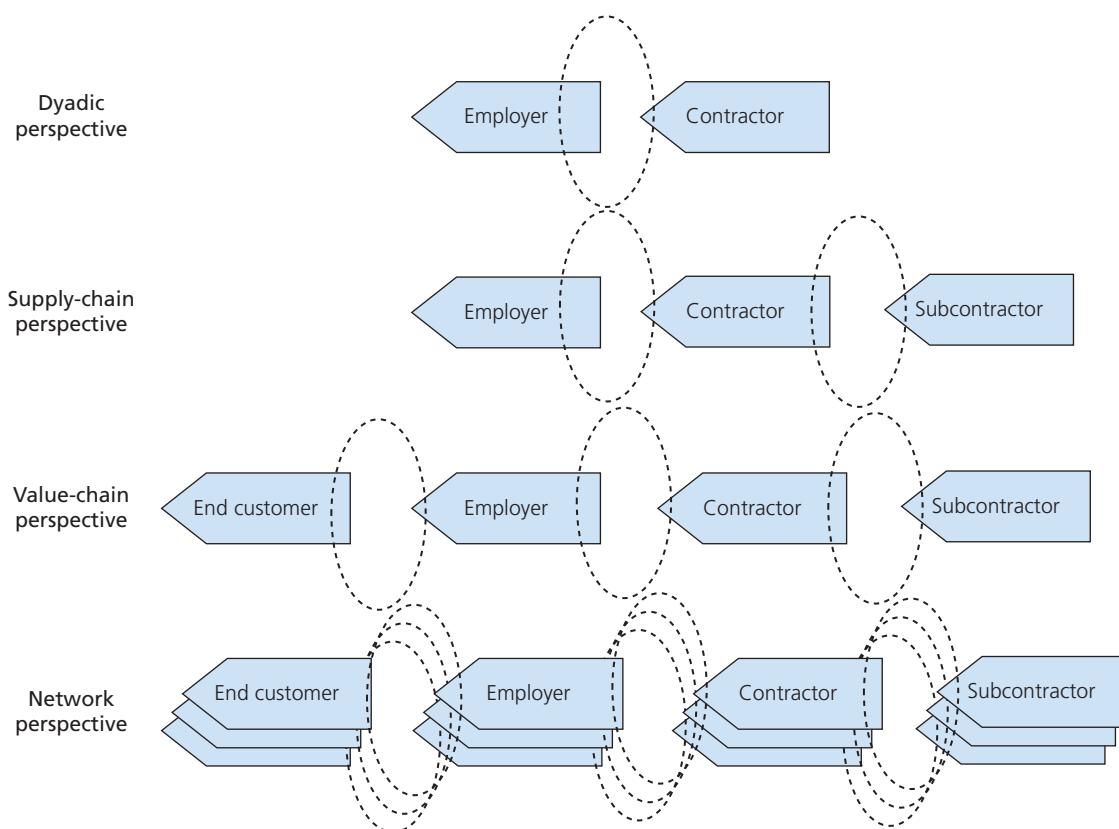
Value chain perspective
Contracts are closed based upon the client's key interests and requirements.

Network perspective

Contracts are closed recognizing value network interdependencies.

- **Network perspective.** This perspective builds on the previous ones and recognizes that no company can act in splendid isolation. All parties are aware of the interdependencies which may exist in the relationships with other companies that belong to the same industry. This becomes clear in tenders, where a contractor wants to involve a specific subcontractor or key supplier early and therefore requires exclusivity from them. Often, the subcontractor is reluctant to provide such exclusivity, since they are not sure which main contractor will win the tender. Therefore, they also engage in relationships with other potential main contractors, which they assume may win the tender. Obviously, such behaviour impedes longer-term and close collaborative relationships between partners in complex projects. Adopting a network perspective recognizes the interdependencies that may exist between different stages in the construction industry's value chain.

Figure 7.2 Different perspectives on contractual relationships



Knowledge of these four perspectives on contract management is important when designing a contract or when discussing a conflict between parties. For example, in the case where a subcontractor makes up a significant part of the total project, this would call for early involvement of that subcontractor in the tender stage. When constructing a harbour in a developing country, a large part of the project sum may go to the dredger who needs to provide for sufficient depth in the bay and its seaway. Most likely, the main contractor sent out a competitive offer to the buyer, i.e. the end-customer (e.g. harbour authority or national government). In their final negotiations they had to reduce their bid price even more to win the order, leaving almost no profit for the work. In most

of these cases, the contractor's procurement organization will push its subcontractors and suppliers for further cost reductions. However, in the international dredging market news travels quickly. Once the deal has been closed between the main contractor and the client, the dredging companies will know. As a result, the dredging company will not move an inch with regard to their initial offering to the main contractor, leaving little space to manoeuvre for the main contractor. In such situations, it seems preferable to involve the dredging supplier at the tender stage to create a partnership for the project involved. When (price) concessions need to be made in order to win the contract, the main contractor and dredging supplier can jointly decide on what to do. This is one illustration on how to apply the supply chain perspective to contract management.

Contract models

At this stage of the contracting process it has become clear what type of contract will be closed with the client. Alternatives here are:

- **Construction-only contract.** Under the usual arrangements for this type of contract, the contractor constructs the project in accordance with the design provided by the client.
- **Design and construct (D&C).** This is recommended for the provision of electrical and/or chemical plants, and for the design and execution of building and engineering projects. Under the usual arrangements for this type of contract, the contractor designs and provides, in accordance with the client's requirements, plant and/or other works, which may include any combination of civil, mechanical, electrical and/or construction works.
- **Contract for engineer–procure–construct (EPC) projects/turnkey projects.** This may be suitable for the provision on a turnkey basis of a process or power plant, or a factory or similar facility, or an infrastructure project or other type of development, where (1) a higher degree of certainty of final price and time is required, and (2) the contractor takes total responsibility for the design and execution of the project, with little involvement by the client.
- **Design-build–finance–maintain (DBFM) contract.** This is used in situations where the client does not have the technical knowledge to design the project, does not have the financial resources to pay for the total investment upfront, and does not want to engage in the maintenance of the project. All of these activities are to be transferred to the contractor, who in many cases will need to team up with other specialist subcontractors and investors in order to apply for the contract. Usually, this leads to very complex contracts, which extend for a long period of time (20 years or more).
- **Design-build–finance–maintain–operate (DBFM-plus) contract.** Here the contractor accepts the obligation to operate the permanent works for a certain period of time. When doing so the buyer's personnel may become familiar with the operational details of these works, in this way obtaining the necessary experience. Delivery and operating a toll road may serve as an example of this type of contract.

A basic understanding of contract models is important, since every contract defines the responsibilities and liabilities between contract partners.

In Construction-only (i.e. construct) contracts the risk and liability for design and engineering lies with the client or the client's engineer. The contractor is liable for the

Construction-only contract Contractor constructs the project in accordance with the design provided by the client.

Design and construct (D&C) Contractor designs and provides, in accordance with the client's requirements, plant and/or other works.

Contract for engineer–procure–construct (EPC) Contractor delivers project or work turnkey.

Design-build–finance–maintain (DBFM) contract Contractor completes work at own risk and gets paid long-term payments after delivery.

Design-build–finance–maintain–operate (DBFM-plus) contract Contractor completes and operates work at own risk and gets paid based upon actual performance.

degree to which their work meets the client's specifications. When a Construct contract applies, the client should be aware that every change in its technical requirements could result in extra cost to be charged by the contractor. Engineering changes should be documented carefully, followed up on their cost consequences and approved with the contractor prior to execution. Experienced contractors may act very rigidly on this and will probably not commence any work on changes if financial consequences have not been approved by the client beforehand.

This is very different when an EPC contract applies. Here, the contractor is responsible for ensuring that the work delivered meets the customer's functional design, which was checked and accepted by the contractor beforehand and as such has become part of the contractor's responsibility. Another way of putting this is that their work should be fit for the functional requirements of the design, whereas the design should be fit for purpose. Both types of contract have different implications for the roles of the parties involved.

When an EPC contract applies, the contractor is responsible that the works, at the point of handover, meet the definitions of the intended purposes as provided by the client when concluding the contract. Also, the contractor shall assure that the works meet the criteria for testing and performance. In other words, the contractor should deliver the project turnkey. The client and the client's engineer should refrain from detailed involvement with regard to construction and execution of work when an EPC contract is in place. Preferably, the client should adopt a hands-off approach.

In industry, several standard templates are available for these different types of contract. Examples of standard contracts include FIDIC and LOGIC for construction and offshore installations, and BIMCO for shipping and towing activities. These standard contracts are derived from the best practices in the sectors and have been agreed between major players (both clients and contractors) in these sectors. The use of these international contract standards is widely spread.

Using these contract templates improves communication between parties in international business, they save a large amount of time and costs since agreement exists about the terminology and conditions, and contract parties can benefit from the large experience from which these standard contracts have been derived. In these standard contracts, all subjects are covered in a methodological and systematic way.

With regard to contract negotiation strategies and tactics, we have observed a wide range of practices which unfortunately are beyond the scope of this book. The reader is referred to the specialist literature on this topic (Fisher and Ury, 2012).

Contract building blocks: pricing and payment mechanisms in contracts

PRICING MECHANISMS

Before entering into the contract negotiations stage, the client has to decide on the contractor's reward scheme. Here, the buyer chooses whether the contractor's work will be paid based on a fixed price or a cost-reimbursable basis (also referred to in the literature as 'time and materials' contracts).

When work is executed based on a **fixed price contract**, the client orders the contractor to perform the required activities at a fixed price and to have the work completed by a predetermined date. The advantages of this pricing method are that the client knows exactly where they stand financially. Moreover, after completion of the work there is no need for

settlements because all risks are carried by the contractor. A final advantage is that the client has certainty about the completion date. As the price is fixed, it is in the contractor's interest to execute the work as efficiently as possible. The fixed price is an incentive to complete the work, or deliver the goods, as quickly as possible within the agreed terms.

A major disadvantage of this method is that it is difficult to gain insight into the contractor's cost breakdown if the client lacks expertise. As a result, the client is unable to judge the price quoted by the contractor. This problem can be avoided by requesting quotations from more than one contractor. Another disadvantage of fixed price contracting is that it requires a thorough preparation and, hence, a lot of time to prepare the detailed specifications – the question is whether there is enough time to prepare a detailed specification and have a formal bidding procedure. Finally, the client does not know in advance which contractor will turn out to be the best.

When the contractor is paid based upon a cost-reimbursable basis, the activities to be performed do not exactly have to be known. The client orders the contractor to perform the required activities and/or to provide equipment at a predetermined hourly rate, in combination with a prearranged percentage to cover the overhead costs. Next, a profit percentage is agreed. All materials for the project are paid for by the client. Settlement follows after completion of the activities, based on the contractor's day reports (stating the hours worked and the materials which have been consumed). An advantage of this method is that the client can begin the work immediately. Also, they obtain an exact picture of the cost structure of the work.

Obviously, there are also some disadvantages related to this type of contracting. First, there is no predetermined fixed price, so the buyer is not sure about the financial outcomes. Hence, unlike the fixed price mechanism, the risks are the client's. Next, there is no incentive for the contractor to work faster, as they are reimbursed for every hour worked: every setback is charged to the client. Therefore, the buyer faces the risk of an uncertain cash flow, which is why in many reimbursable contracts, incentives for safe, accurate and speedy work are included.

Finally, the buyer needs to follow up on the quantity and quality reports of the contractor. They need to make sure that no more quantities are invoiced than are actually consumed. This is why in some countries (e.g. the UK) quantity surveying has developed into a specialism. Quantity surveyors keep track of all materials delivered and consumed, and the actual hours worked on the job. Their reports can be used to check the invoices submitted by the contractor.

An additional disadvantage of this method is that the buyer is not forced to specify exactly what is required. Frequently this specification is left to the contractor for the sake of convenience. Due to the uncertainty of the final cost, many buyers avoid working with cost-reimbursable contracts. Some only use them in the case of specific, minor maintenance/repair activities for which the financial risks are relatively clear. Another problem is that the buyer is not certain about the exact project delivery date. Cost-reimbursable contracts are not without problems and need to be managed with great care. A common misunderstanding is that the contractor would not be liable for mistakes and errors, i.e. that extra work to cover for such mistakes and errors can always be charged to the buyer. This is not the case.

Some elements of cost-reimbursable contracts are:

- Wages and salaries of key managers and workers
- Percentage for general overhead and profit
- Reporting procedures for hours worked and consumption of materials

- Cost of tooling and special equipment
- Hiring of subcontractors and allowance for procurement activities
- Costs related to co-ordinating the work of subcontractors
- Approvals on cost estimates for extra work
- Approvals for materials to be delivered by client
- Agreement on what facilities will be provided by client
- Resumés of key personnel to be assigned by contractor
- Arrangement of the required licences and permits from local authorities
- Approval for selection of subsuppliers of contractors.

Cost-reimbursable contracts, if combined with proper incentives for all contractors involved and if well managed, may represent an effective vehicle to allow for productive collaboration between buyer and contractor(s). In fact, it represents a situation where all parties involved work on an open-book calculation, i.e. full transparency, which would in principle allow for better decision-making and mutual understanding. Well-chosen incentives should prevent opportunism among parties.

The decision in favour of either fixed price or cost-reimbursable contracts is determined by a number of factors, such as:

- Scope and comprehensiveness of the specification. The scope of a project determines what contract type can be used best. Where complex engineering is required, this may be offered on a reimbursable basis, whereas the actual construction (later on) can be offered at a fixed price. The availability of detailed specifications is a crucial prerequisite of a lump-sum contract. Absence of specifications makes a fair comparison of the various quotations impossible.
- Available time. Does the client have enough time for a tender procedure and price negotiations or should the work be started immediately?
- Technical expertise. If the work requires specialized knowledge and skills which are not present within the client organization, a cost-reimbursable contract is often preferred.
- Knowledge of the industry. The degree to which the client knows the methods and price arrangements that apply in that particular industry.

A third type of contract which is often used in the international contracting world is the **unit rate contract** or **charter contract**. These contracts determine the cost per activity for repetitive or standardized and routine work. Petrochemical companies, for example, annually negotiate unit rates for repetitive installation and maintenance activities which are subcontracted to contractors (for instance unit rate per metre of piping that is installed, or unit rate per square metre of space that is painted). Unit rate contracts are used for activities which are common, repetitive and/or standardized but which are difficult to estimate in terms of volume and time. In the offshore industry this is often the case. Therefore unit rate contracts, in the offshore industry referred to as 'charters', are used in terms of day rates per dredger, barge or tow boat.

In general, for smaller and less complex jobs, the client should insist on a fixed price, arrived at through tendering, i.e. competitive bidding or negotiation. The agreed price should be acceptable to both client and contractor. Financial obligations between parties should be defined unequivocally. In fixed price jobs the client will try to impose as many risks on the contractor as possible. A fixed price is definitely preferred from the perspective of cost control or budget management. However, in complex jobs which allow for a lot of interaction between the client and contractor(s), a reimbursable contract, in

combination with unit rates, may be a better solution. A fixed price contract in most cases will cause opportunism to develop between parties. A reimbursable contract, if properly incentivized, would allow for much better and more constructive interaction between the parties involved.

PAYMENT TERMS

When capital goods, installations, infrastructural and other construction projects are contracted for, it is common practice for payment to take place over several terms, partly because the contractor will have to make large investments to be able to produce the desired work. If this method of payment is used, account should be taken of the influence of the payment terms on the final price. Attention should also be paid to covering the risk related to paying for goods that have not yet been delivered.

In general, the preferred method of payment is **milestone payments**, which are based on the contract's milestones. For instance, payment of 20 per cent of the total sum when 25 per cent of the work is completed, 45 per cent when 50 per cent of the work is completed, etc. The last 5 or 10 per cent of the payment is held back until the client is absolutely sure that the equipment operates exactly as it should or, in the case of a service, that the contractor's work has met with the customer's satisfaction.

Advance payments are typically covered by a **bank guarantee** in which the contractor's bank guarantees to the buyer that the contractor will meet its obligations. Such a bank guarantee completely covers the prepaid sum and is valid for the period of delivery of the part that the bank guarantee relates to. If appropriate, a **concern guarantee** from the holding company (which is often less expensive) will suffice.

In many cases payments are covered by a **performance bond**. A performance bond includes a written guarantee from a third-party guarantor (usually a bank or an insurance company) submitted to a client by a contractor on winning the bid. A performance bond ensures payment of a sum (not exceeding a stated maximum) of money should the contractor fail in the full performance of the contract.

Subsequently, attention should be paid to drawing up an agreement providing specifically for the transfer of ownership.

Milestone payments

Payments are made based upon deliveries made for each project planning stage.

Bank guarantee

Guarantee issued by the bank of the supplier that the supplier will meet its obligations.

Concern guarantee

Holding company secures payment for an agreed sum in case the business unit fails to make payments.

Performance bond

Written guarantee from a third-party guarantor.

PENALTY CLAUSES, LIQUIDATED DAMAGES AND WARRANTY CONDITIONS

According to the general purchase conditions of several large companies, contractors must guarantee, with respect to the delivered goods, that they are of good quality and completely in accordance with the agreed requirements, specifications, conditions, drawings, samples, etc. and that they are suitable for their intended purpose. Furthermore, the contractor needs to guarantee that the goods will be completely new and free of defects, and that new materials of good and suitable quality will be used for the manufacture of these goods and that first-rate technical and expert personnel will be used.

An important clause in the contract is to agree on what legal system the contract will be subject to. Usually, the contractor will select the legal rules (note that legal systems differ per country; each contract stipulates what legal system applies to the contract) that apply for the company in which the contractor is domiciled. These may be different from the country where the client is located or where the project is executed. Whatever system is chosen, it should be arranged that the purchased goods, or the use of them, do not contain any risk regarding the health or security of persons, property and environment.

Performance guarantee The contractor guarantees the actual output or outcome of the work to be delivered.

Liquidated damages Sum that will be paid in case the contractor fails to deliver works according to the client's specifications.

Agreements will also have to be made with the contractor about the performance of the goods to be delivered. In the case of acquisition of investment goods, a **performance guarantee** can be agreed upon, for example by agreeing that a particular excavator will move 10 tons of sand per hour. Or that a tugboat without tow will be able to deliver 16 knots maximum speed. If the agreed performance is not met, corrective measures need to be discussed in the first instance. If these turn out to be inadequate, then the resulting **liquidated damages** are to be recovered from the contractor. This procedure must be agreed upon in the terms and conditions of the contract. Penalty clauses do not, therefore, provide a solution for problems occurring at the stage of execution or delivery; at most they can limit the resulting damages afterwards.

In some circumstances, a penalty clause is not effective. This may be the case if, for example, performance of equipment that is bought is found to be more than 5 per cent under the agreed performance standard. In such cases the client may arrange to refuse the product or equipment in question. Another example is when a contractor does not meet local legal requirements. In such an event, the client must be able to reject the delivery and a penalty clause will also not be effective.

It is also important that the period during which the contractor is liable for the reliability and adequate functioning of the delivered permanent works in the specified circumstances, is recorded in the contract. In general a period of 12 months is included as the warranty period in the terms and conditions of the agreement. The agreement should also state when the warranty comes into effect. This can be the date that the permanent works are put into service, or it can be the date at which the works were taken over by the client.

One special aspect in the case of investment goods is systems responsibility; it is common to demand from the contractor that they take measures to maintain the delivered product during its economic or technical lifespan. Maintenance and spare parts must be available during this period. This is why manufacturers of trucks are required to maintain their vehicles – sometimes for a period of more than 30 years.

Subcontracting and project execution

In international contracting it is quite common for projects to be won at a price level which is barely profitable. During the final negotiations the contractor may give an additional discount on its already competitive contract price to win the order. When the contract is captured in this way, the project manager is faced with a problem: how to make this project a profitable one? Of course, in many cases efficiency gains can be made by meticulous work preparation and a reduction of operational costs. However, since subcontractors and materials suppliers easily make up 50–70 per cent of the contract price, the procurement organization is often summoned to squeeze these external partners in order to make savings, often referred to as 'Procurement needs to secure the margin for the project'. The procurement organization may or may not succeed in chopping off a few percentages of the total procurement expense. However, in all cases the procurement organization will face a tense relationship with its supply partners, who will use every opportunity to cut costs, give in on quality and delivery, and charge heavily for extra work. What is even worse, the supply partners will have no interest at all in making the project a success for the project manager, the contractor and/or the client.

This case is an illustration of what we have referred to earlier in this chapter as a 'dyadic perspective' on contracting, which is characterized by a 'win–lose' attitude of contract partners. Although this approach has its merits (it is easy to practise), its major disadvantage is that parties will pursue only their own self-interest to the detriment of the client's interest. This traditional approach towards subcontracting and procurement should therefore only apply for non-strategic, low-volume subcontractors and suppliers.

Engaging strategic subcontractors and suppliers would, preferably, call for a more careful approach: these supply partners should be contracted using **back-to-back agreements** which cover the risks and liabilities of the main contract as much as the case will allow. Otherwise, the risks for non-performance are fully carried by the contractor. Back-to-back agreements in general create a stronger interest from supply partners to meet the contractor's and client's needs. For strategic supply partners full business alignment should be realized, i.e. alignment between the supply partners' interests and the contractor's and client's interests. Back-to-back agreements are helpful in creating a supply chain, i.e. value chain orientation. Parts of these back-to-back agreements are penalty and incentive schemes, which may motivate the supply partners towards constructive behaviour and contributions.

Subcontracting and procurement precede the stage of project execution. In theory, this may be true. In practice, subcontractors have started their work already and materials suppliers may have delivered their materials before a proper contract has been put in place. Memo 7.2 provides an overview of the measures that a project procurement manager can put in place to secure supplier selection and materials supply.

Back-to-back agreements Key subcontractor contracts reflect all conditions of the main contract between client and contractor.

Contract governance

Some lawyers consider contract management similar to war. As contract parties have different objectives, they will pursue their own self-interest, often at the cost and to the detriment of the other party. When disputes arise, there is no other way to solve these than either outsmarting the other party (being smarter than the other, providing new data and information that they were not aware of) or exerting extreme commercial power (e.g. 'If you do not give in on this dispute, this is the last contract that I will ever award to you'). The prevailing co-ordination mechanism for settling disputes and conflicts is negotiation. In these negotiations, contract parties will probably not be 100 per cent clear and fair about their intentions, commitments, plans and resources.

The view of contract management as war is quite common among lawyers and legal counsels. Often, these parties benefit from enlarging disputes and conflicts and making them more complex. This is comprehensible if one is aware of the business model which underlies most legal practices. The more complicated the case, the more hours need to be spent, and the greater the resulting fee will be.

However, a more collaborative view towards contract management should be possible. Essentially, a contract is a vehicle to serve and facilitate the collaboration between the parties involved. As we have seen earlier, the contract can be aimed at: (1) meeting the project objectives and (2) meeting the business objectives and strategic goals of the final customer.

Memo 7.2

How to secure supplier selection and materials supply for projects

Engaging subcontractors and materials suppliers effectively in a project is a complicated matter and calls for a range of measures. The following is what a project procurement manager could do:

- Have a proper supplier selection procedure in place which documents how supply partners are preselected, i.e. prequalified, how bids are evaluated and decided upon, what contracts are to be used and what general purchase conditions will apply. This would require a dedicated procurement manager to be assigned to the project who can act as a liaison between the project engineers, the procurement organization and the (sub)contractors.
- Have proper contract administration in place covering all contract documents, change notices and other related documents. Obviously, this is a key requisite for successful contract management.
- Have a proper order-to-pay system in place allowing the project support staff to order materials and services using the company's corporate purchase agreements and allowing for a full tracing and tracking of materials.
- Send a copy of general purchase conditions when necessary.
- Provide for effective expediting, following up on project strategic materials, subcontractors and suppliers.
- Have a quantity surveyor or contract manager on site who follows up each subcontractor and supplier on the number of hours actually spent, the quantity of materials actually consumed and the equipment availability and usage.
- Have a clear incoming and quality inspection procedure in place for all incoming materials. Shipments should be checked with purchase orders in terms of quality, quantity and timeliness of delivery.
- All materials to be kept in secured inventory locations.
- Have a clear procedure on handling invoices coming from supply partners. All invoices should be subject to a three-way matching principle (order matches delivery document, delivery document matches with invoice, to be checked by independent person; invoice matches with the order). All exception invoices should be checked by the project manager. Invoices without a purchase order (PO) number should be returned to the supplier/subcontractor.
- Have a proper subcontractor and supplier evaluation procedure in place, allowing the ranking of supply partners in terms of partners, preferred suppliers, suppliers, and suppliers with whom the relationship would need to be terminated due to bad performance.

If these procedures are put in place (which would call for adequate staffing and resources), the project procurement manager could easily save 3–4 per cent of materials cost on the project. These savings are the result of less waste, less theft and payment for actual performance or goods delivered, although in some industries suppliers occasionally may invoice higher volumes than have actually been delivered.

The activities of expediting, materials control, quantity surveying and contract management of most projects are undervalued, underrated and understaffed. These activities should not be seen as a cost to the project, but rather as an investment (which will be recouped within a couple of months).

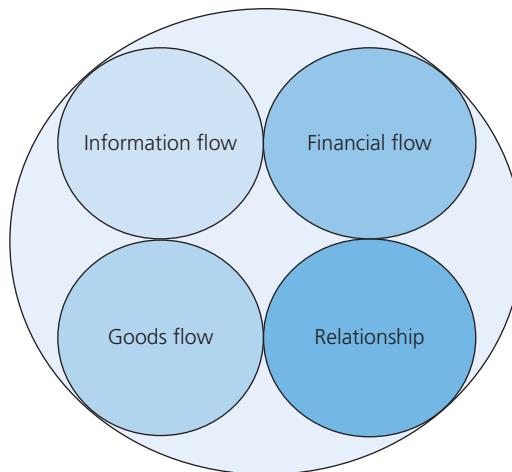
When making payments ahead of time, as some suppliers may require or need, the project procurement manager should make sure that the supplier issues a bank or concern guarantee. Through a statement 'Transfer of Title of Ownership', it should be assured that materials that are produced by the supplier (e.g. piping or steel plates) are kept separate from other materials and are labelled with the name of the contractor, i.e. the project's name. This will prevent any problems if the supplier were to get into financial problems or go bankrupt.



A collaborative attitude towards contract management requires careful orchestration of four dimensions of the interaction between buyer and supplier (refer to Figure 7.3):

- Information flow. In organizing for the work to be done, parties need to agree on what information will be provided by whom, at what time, in what form, when and to whom with regard to the functionality of the work, its technical requirements, the planning that will apply, etc. Moreover, it should be agreed what information will be exchanged between the parties during the course of the project.
- Goods flow. Arrangements need to be made on how materials will be delivered to the work and when the work will become the property of the buyer. Arranging for the goods flow implies agreement on how tracing and tracking of the project deliverables between parties will take place.
- Cash flow. As large projects will require sufficient and timely funding, parties need to arrange for specific agreements on when payments will be made against what warranties. Also they need to discuss what will happen if payments are postponed or deferred, for whatever reason.
- Relationship quality. Most construction works are conducted in highly complex networks consisting of different parties, companies, managers and employees, who may come from different cultures. As experience has shown, the human factor is key to project success. Therefore, specific arrangements are needed on how to improve and maintain the relationship quality (such as trust, communication and commitment) among all the key stakeholders involved.

Figure 7.3 Contract management: four dimensions need to be managed in parallel



Experience has shown that better outcomes can be achieved through collaboration (see, for example, Liker and Choi, 2004; Nicholas and Nicholas, 2011; Womack and Jones, 2003) and that the nature of the relationship can change from one phase of the contract to the other. Contract management is a dynamic phenomenon.

Summary

In this chapter we defined contract management as: 'the process which ensures that all parties to a contract fully meet their obligations, in order to satisfy the operational objectives of the contracts and the strategic business goals of the customer'. A major challenge underlying professional contract management is to overcome conflicts of interest which may arise between the client and the contractor. These problems are addressed by agency theory, which holds that the relationship between a client (buyer) and agent (contractor / supplier) is characterized by opportunism resulting from goal incongruence and information asymmetry. Overcoming these problems calls for an effective choice between behaviour-oriented contracts and output-oriented contracts. Complex projects preferably call for output-oriented, i.e. performance-based, contracts as these allow for better business alignment. These contracts incentivize project participants in such a way that all indeed share and work towards a common objective. Preparing a thorough risk assessment and jointly discussing the outcomes of this exercise are also required to create alignment between contract parties.

Contract management puts great demands on the governance structure, i.e. the way communication and information exchange between parties is organized. An effective governance structure facilitates rational decision-making and creates a better mutual understanding. In practice, such business alignment is hard to realize. Since most projects are unique, problems are likely to occur. Operational problems may result from misalignment of objectives between the client and contractor; a lack of knowledge and expertise among the parties involved; interference of engineers, consultants and experts; playing the project too much by the rules; misunderstandings of what has been agreed; and frequent scope and planning changes.

Contract parties may have different attitudes towards contracting. Some parties may consider contracting as a war game. In such a game, every party will pursue its own self-interest, often to the cost and detriment of the other party. When disputes arise, and these will arise, each party will seek power strategies to outsmart the other party. This view is quite common among lawyers and legal counsels.

In this chapter we have proposed a collaborative view towards contracting. According to this view a contract is seen as a vehicle to serve and facilitate the collaboration between the parties involved. Such a collaborative view requires a careful orchestration of four dimensions that define the interaction between the buyer and the supplier, including: the information flow, the goods flow, the cash flow and the relationship quality. Each of these dimensions should receive sufficient attention from contract parties in each stage of the contracting and contract management process.

In order to solve operational problems, procurement managers can adopt different perspectives. We discussed the dyadic perspective, the supply chain perspective, the value chain perspective and the network perspective. Knowledge of these four perspectives is important when designing a contract or when discussing a conflict between parties. The more actors are included in the project procurement manager's perspective, the broader the range of options for solving problems.

The contracting process has in fact three main stages, i.e. the pre-contractual stage, the contractual stage and the post-contractual stage. Elements of the pre-contractual stage are sales and marketing, and tender and bid management. The contractual stage includes discussions about how to land a contract and the actual contract negotiations

and closure. The post-contractual stage includes detailed engineering and design, subcontracting and procurement, project execution, testing and delivery, maintenance and guarantees, and finally dealing with claims. All these stages are interrelated in the sense that problems that have occurred during a previous stage are likely to impact subsequent stages of the contracting process. Contract management is a dynamic game. This means that managing the interfaces of the contracting process is of utmost importance, for the client, contractors and all subcontractors and suppliers involved.

Assignments

- 7.1** Suppose you own the house you live in. The house needs to be painted. You intend to hire someone else to do the work for you. It is the first time that you contract someone for paintwork. What type of contract would you prefer: a fixed price contract or a reimbursable contract? Would you pay your painter based on a lump sum? Discuss.
- 7.2** When a contractor has won a contract with a client, they in most cases have to give an extra discount on the initial price that was offered to the client. This discount usually reduces their already thin profit margin to a bare minimum. Given the fact that procurement in general makes up more than 70 per cent of a project's price, project management puts pressure on its project procurement managers to obtain lower prices from their suppliers and subcontractors as 'procurement needs to secure the profit of the project'. Do you agree with such an attitude towards suppliers and subcontractors? What would you consider the most important risks related to dealing with suppliers in this way?
- 7.3** When discussing 'the contracting process', this chapter states that when subcontracting for a complex project, project procurement managers should use back-to-back contracts for business-critical project activities that are subcontracted to specialist firms. What are back-to-back contracts and why should project procurement managers use these? Explain.
- 7.4** When discussing 'problems in contract management', this chapter states that engaging external consultants and advisers in projects seems to represent a significant challenge as this often slows down the project. Why is this? Discuss. Use the agency theory as a platform for your arguments.
- 7.5** Some legal counsels and solicitors operate from the view that 'a contract does not need to be fair, but just needs to be clear'. Do you agree with this statement? Why? Why not? Discuss.
- 7.6** Different views on contract management are explained in this chapter. Extremes are: (1) contract management as a war game and (2) contract management as a vehicle to facilitate collaboration. What factors could explain both views?

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8 Public procurement¹

Learning objectives

After reading this chapter you should understand the following:

- The principles of public procurement and tendering.
- The specific characteristics of public procurement policy.
- The content and scope of the European public procurement directives.
- The most important procurement procedures for public procurement.
- The specific problems that may occur when executing these procurement procedures.

Introduction

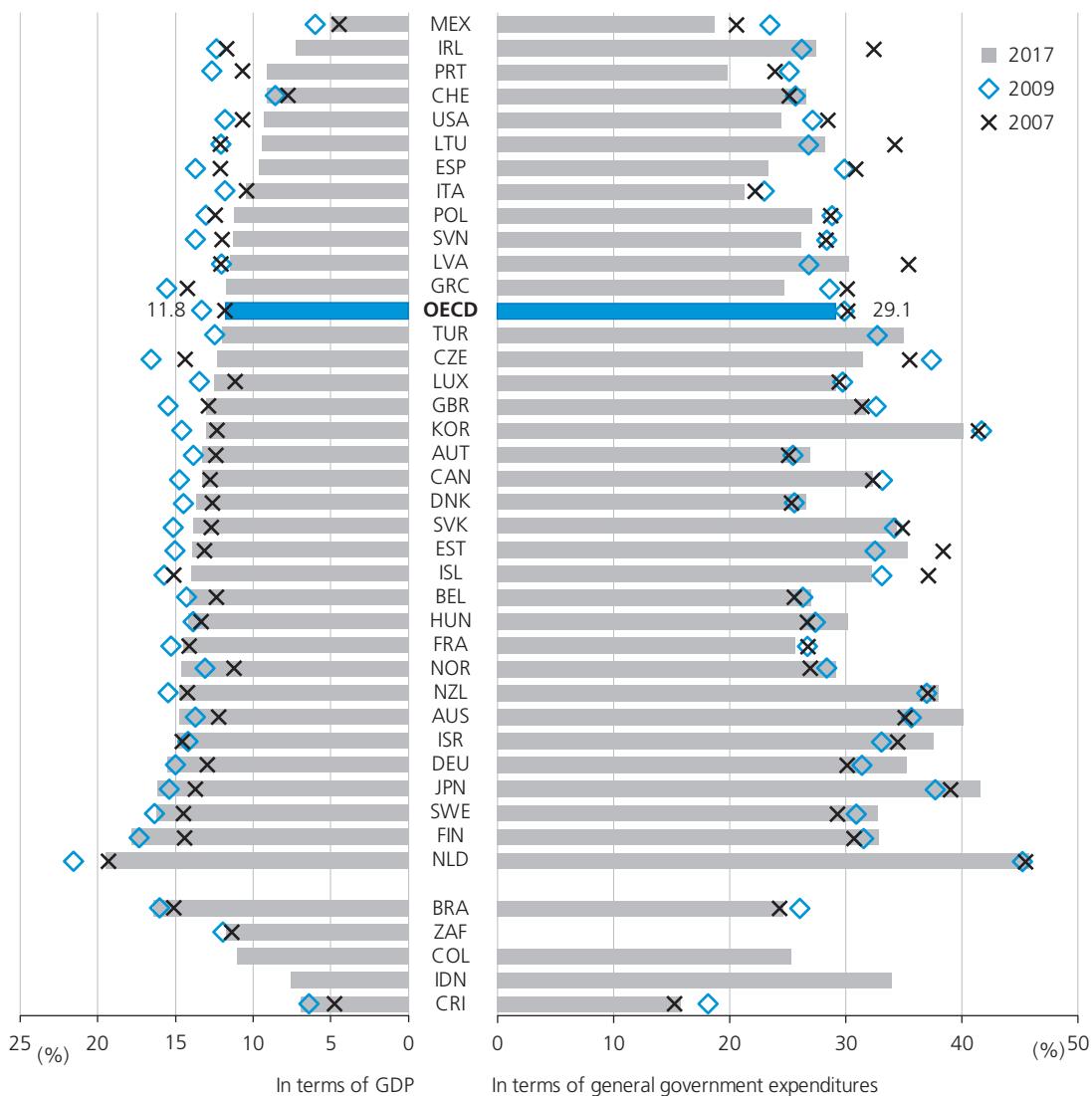
For many suppliers, service providers and construction firms, public authorities and utilities are among the most important customers. In some sectors, public institutions and public utilities may, in fact, even have the position of a monopsonist (i.e. single buyer on the market). For example, demand for weapon systems and tanks is limited to the Ministry of Defence. Demand for water purification installations is limited to drinking water companies, which are often owned by the government. Tendering for civil infrastructure, such as roads, bridges and tunnels, is in large part also limited to the ministries of infrastructure and transport and municipalities in many countries.

The total volume of the market for public contracts in all EU countries is considerable. Government procurement of goods, services and works reached nearly €2.5 trillion or 16 per cent of EU Gross Domestic Product (GDP) in 2020, which means that governmental institutions play a crucial role in developing the internal markets within EU member states (European Parliament, 2020). Government spending on procurement makes up a large part of the governmental budget and represents a considerable part of a country's GDP (refer to Figure 8.1 and Memo 8.1). The idea behind the European Treaty is to create one European market without trade barriers, based upon a liberal market mechanism, so that free exchange of goods, persons, services and capital can be accomplished. As government spending is so large, the EU endeavours to create one common market where all suppliers are able to solicit for governmental orders for products and services. This is what this chapter is about.

¹This chapter is co-authored by Hein van der Horst, co-author of the handbook *How to Deal with Public Procurement* (2018).

Figure 8.1 General government procurement as percentage of GDP and total government expenditures, 2007, 2009, 2017

Source: OECD, Government at a glance (2019), Section 8 Public Procurement, p. 135. Reproduced with permission.



Memo 8.1

The member states of the European Union

The EU consists of the following member countries (with their year of entry to the EU): Austria 1995, Belgium 1951, Bulgaria 2007, Croatia 2013, Cyprus 2004, Czech Republic 2004, Denmark 1973, Estonia 2004, Finland 1995, France 1951, Germany 1951, Hungary 2004, Greece 1981, Ireland 1973, Italy 1951, Latvia 2004, Lithuania 2004, Luxembourg 1951, Malta 2004, the Netherlands 1951, Poland 2004, Portugal 1986, Romania 2007,

Slovenia 2004, Slovakia 2004, Spain 1986 and Sweden 1973.²

The total population in 2018 is 447 million compared with the United States, which is 328 million and Russia, which is 145 million.

The case study looks at what good procurement is all about.



²The UK left the EU on 31 January 2020.

Case study

What is good procurement?

There are many definitions of procurement as there are many opinions about the role that procurement should have in an organization or society. One of the clearest views on procurement was stated by the UK government to guide in its efforts to professionalize public procurement:

'Good procurement means getting value for money – that is, buying a product that is fit for purpose, taking account of the whole-life cost. A good procurement process should also be delivered efficiently, to limit the time and expense for the parties involved. Successful procurement is good for the public, good for the taxpayer, and good for businesses supplying government. While there is no single method that will guarantee the delivery of those objectives for all procurements, the following general principles set out the key steps to successful procurement in most cases. A procuring authority should:

- be clear on the objectives of the procurement from the outset
- be aware of external factors that will impact on the procurement such as the policy environment or planning issues
- communicate those objectives to potential suppliers at an early stage, to gauge the market's ability to deliver and explore a range of possible solutions
- consider using an output or outcome-based specification, to give suppliers – who naturally know more about their business than potential buyers – more scope to provide innovative solutions to solve the underlying problem the procurement is designed to deal with, rather than deciding what the precise solution should be at the outset
- follow a competitive, efficient, fair and transparent procurement process, and communicate to potential suppliers at the outset what that process will be. This will give suppliers greater certainty about the costs and benefits to them of submitting a bid, which should encourage effective competition. As all suppliers have the same knowledge going into the process, and will be assessed in the same way, the successful bidder can be chosen purely on its ability to provide the best solution
- be clear about affordability – the resources available to spend on the particular good or service. The procurer has to select on the basis of whole-life value for money, but in setting budgets for individual projects departments also need to make decisions about relative policy priorities and needs. If more is spent on one project than originally allocated, that will mean less is available for other priorities. Conversely, if savings are achieved, then these can be redeployed into frontline services
- establish effective contract management processes and resources in good time to drive excellent supplier performance throughout the contract.'

Source: *Transforming government procurement*, HM Treasury (UK), January 2007. Reproduced under the Open Government License for public sector information.

The nature of public procurement

Public procurement is an interesting subject because of its multidisciplinary character. Public procurement involves disciplines such as economics, public administration, public finance and law in its broadest sense (including civil, public, administrative, procurement, competition and European law). Successful tendering by public authorities requires a thorough understanding of all these disciplines. This makes public procurement so fascinating, but also so complex.

The procurement policy of the public authorities (the state, regional or local authorities, bodies governed by public law, associations formed by one or more such authorities or bodies governed by public law) has very specific characteristics. However, for the public utilities sector (public transport, water supply, energy supply, postal services and ports

authorities) and contracting authorities in the fields of defence or security, a separate and more flexible procurement regime is in place.

An important characteristic of public procurement policy is legality of tendering and public accountability. This holds that private companies may sue public authorities for not being compliant with the public procurement directives. Therefore, a prime consideration in executing procurement decisions is their legitimacy. Since public authorities and utilities can be sued in cases of infringement of EU procurement law, the legitimacy of procurement decisions often overrides their efficacy. This explains why contracting authorities are primarily procedure-driven rather than result- or performance-driven. EU procurement law prescribes in a fair level of detail how procurement procedures should be made and it must be clearly established in advance on the basis of which criteria the contracts will be awarded. Negotiation of a tender is allowed only in exceptional cases.

The consequence of public procurement law is that market forces take place within a legal framework. Commercial incentives are almost totally absent in public authorities and, hence, there is no drive to create the best value for taxpayers' money. Other political objectives may underlie public procurement decision-making. For a small municipality, it may be important to promote local employability by placing orders for construction or installation work with local contractors. For another municipality, it may be important to foster sustainability by buying products and services for a higher price, but which do not do any damage to the environment. A large city may want to buy coffee from developing countries to show its commitment to create a better world for subsistence farmers in those countries. These examples illustrate that political objectives may override the economic objectives of buying goods and services against the lowest possible price.

A compartmentalized market of government contracts, where national governments favour their national and local suppliers, is in conflict with the realization of one single European market. For this reason, the EU introduced strict procurement directives, which prescribe, in a fair level of detail, how governmental authorities and municipalities should buy. The basic idea behind these directives is that the massive EU market should be accessible to all suppliers within the EU.

Four major principles underlie each of these procurement directives. These are: non-discrimination, equality, transparency and proportionality. When applying the procurement directives, governmental authorities should comply with these four principles.

The principle of non-discrimination should safeguard that the market for government contracts is accessible to every supplier, whatever their nationality and country. For this reason, it is not permitted to prescribe that a company should be located in, for instance, the Netherlands, or that it should previously have done business with the Dutch government. Neither is it allowed to require a specific product name or brand. The only discriminating requirement that is permitted is that suppliers should be able to speak and write in the language, if necessary, for the execution of the contract, where the contracting authority is established, if this is considered to be necessary for a successful completion of the contract.

The principle of equality is related to the previous principle. It stipulates that all competitors that compete for the same government contracts should be dealt with in a similar way and that they should be provided with the same information at the same time. In this manner, the procurement directives try to create 'one level playing field' for every supplier.

The principle of transparency forces governmental authorities and public utilities to publish those contracts that exceed certain financial thresholds in the *Tender Electronic Daily* (TED), the EU database that keeps a record of all European tenders. This principle also holds that even the smaller contracts which do not meet the financial thresholds (see later in this chapter) are communicated to the European supplier community. In these cases, public authorities may use their websites or may place specific advertisements in European newspapers.

The principle of transparency holds that the public institution communicates in advance what procurement procedure will be used, what requirements will be imposed on the supplier and how the contract will be awarded among competing suppliers. In general, these procedures also prescribe that suppliers are informed of the reasons for not being selected.

The principle of proportionality states that the requirements and conditions that are imposed on the future supplier are reasonable. This means that they should be in balance with the scope, features and volume of the contract. In the case of the construction of a small bridge for cyclists and hikers over a small canal, a local government may not require a prospective construction firm to have built bridges crossing large main rivers. These four principles underlying public procurement are the backbone of what will follow in this chapter.

An important concept that will be used in this chapter is the concept of the contracting authority. The contracting authority is in general a public institution or public utility that is subject to the EU procurement directives.

To understand public procurement, it is important to know how public finances are managed within the government. In some countries, e.g. the Netherlands, ministries need to spend the budget within the year in which it is allocated to them. Available budgets need to be spent in that specific year. If a contracting authority, by spending the money more wisely, is able to save money, it will lose that money to the central government. This explains why at the end of the year so many public authorities issue extra contracts and work to providers and suppliers. They just want to make sure that the total budget is spent. In the case of the budget surplus at the end of the year, this may be detrimental to the contracting authority, since the central government will then award a lower budget for the next year.

Another aspect of public finance is that budgets for investments and budgets for revenue are separated. As a consequence, a contracting authority may decide to buy investment goods without considering the cost that will be incurred over the lifetime of that investment, since the revenue cost will be paid out of a different budget which usually resides under a different department. This explains why introducing procurement decision-making based upon total cost of ownership is so troublesome for the government. To overcome these negative effects, some countries have introduced an integrated budgeting system which allows public authorities to use procurement savings over a period of time and also allows procurement decision-making to be based on total cost of ownership considerations. However, in most countries progress is slow.

Legality of the tender procedures, public accountability, the absence of commercial incentives and the budget system are prime reasons for the slow development of procurement as a discipline within public authorities. In many public authorities, procurement professionals reside low down in the organization and have little visibility to their top management. Technical experts, legal specialists and policymakers usually dominate procurement decision-making.

The European procurement directives have obviously put public procurement more on the front foot. As a result, political leaders and governmental managers have become more interested in how to structure and execute the procurement function within their organizations. The public procurement function can be compared with the tactical procurement function. However, the major difference is that legal specialists within the public procurement function are much more dominant than in the private sector. Tendering is far more subject to legal and procedural complexities than in the private sector.

Tendering is a crucial part of the public procurement function. It may be surrounded by all kinds of specific legal rules and complexities. This is less true for *public utilities and defence authorities*, which increasingly are subject to the laws of supply and demand. For these two sectors, there are far more similarities with how the private sector makes its purchases.

Memo 8.2 looks at what public tendering comprises.

Memo 8.2

Public tendering

Public tendering includes supply market research; developing a sourcing strategy based on a specification for the delivery of goods and services or construction works; selecting the right procurement procedure; preparing the tendering documents, which will include the technical requirements, supplier

selection and award criteria, contractual conditions, as well as evaluating supplier data and supplier bids; contracting; writing up the final version of the contract; and follow-up of the tender procedure.



Public procurement law

Public procurement law is based upon the body of international laws, national laws and jurisprudence. Public procurement law prescribes in a formal way, how to go about public contracts, i.e. how to deal with suppliers and how to award public contracts. The objective of procurement law is to make the European market for public contracts accessible to all providers and suppliers regardless of their nationality. Over the years, it became clear that contracting authorities violated these principles when awarding contracts to suppliers. In most cases, they kept on protecting national interests by placing contracts with local and national suppliers. For this reason, during the early 1970s, the first European directives for public procurement were introduced. Initially, specific directives were made for 'Works' and 'Supplies'.³ In the early 1990s the directives related to 'Services' and 'Public Utilities' followed.

These four original European procurement directives have been reviewed regularly and have now been replaced by four European public procurement directives, i.e. Directive 2014/24/EU on public procurement; the utilities Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sector; Directive 2014/23/EU for the award of concession contracts for services and works; and in 2004 Directive 2004/18/EC on defence and security.

Public procurement law Public procurement law prescribes in a formal way how to go about government contracts, i.e. how to deal with suppliers and how to award public contracts. Major constituents of public procurement law are four European public procurement directives, i.e. Directive 2014/24/EU on public procurement; the utilities Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sector; Directive 2014/23/EU for the award of concession contracts; and Directive 2004/18/EC on defence and security.

³European Public Procurement Directive on 'Works' originates from 26 July 1971 and the European Public Procurement Directive on 'Supplies' originates from 21 December 1976.

Important reasons to replace the previous original directives were their lack of consistency and their lack of flexibility. The current directives offer the possibility of the application of longer-term framework agreements, and electronic auctions for most of the services that are purchased. Next, for complex contracts, the directives provide for the possibility of interaction between the contracting authority and suppliers and contractors through the competitive dialogue, competitive procedure with prior notice or the innovation partnership. Finally, the current directives are aimed at giving small and medium-sized enterprises (SMEs) better access to governmental business.

All EU member states have implemented the 2014 directives in their national legislation. Hence, the European procurement directives and national legislation provide the legal framework upon which national contracting authorities should act. However, this is not the complete legal context. Public procurement professionals also need to take additional regulations into account, such as the Agreement on Government Procurement (GPA) that was agreed upon within GATT (General Agreement on Tariffs and Trade), now the WTO (World Trade Organization). This agreement stipulates that governments of the member states' contracts should also be accessible to suppliers from the GPA countries.⁴ Since 1996, 21 countries have joined GPA, including: Canada (2006), the EU (1996), Hong Kong (2007), Israel (1996), Japan (1996), Korea (1997), Taiwan (2009) and the United States (1996). Entrepreneurs can compete for government contracts from these countries.

In summary, the contracting authorities need to acknowledge complex legislation when making procurement decisions. A thorough understanding of international, European and national procurement law is necessary in order to prevent problems in relationships with suppliers. Suppliers should be dealt with in a fair way, respecting the four principles of non-discrimination, equal treatment, transparency and proportionality. Procedural mistakes may easily cause delays in project execution and may unnecessarily result in supplier claims being brought before the courts.

Scope of the European Directives on public procurement

SCOPE

With regards to the **public procurement scope** of the European directives, we need to differentiate between to whom the directives apply and what contracts need to be tendered according to these directives.

Directive 2014/24/EU on public procurement applies to all classical public authorities such as central government authorities, regional or local authorities and bodies governed by public law. The latter may include specific research organizations, academic hospitals, universities and schools, police authorities, city development institutes, public museums, libraries and water treatment companies. These examples illustrate the wide range of authorities to which the European directives apply. In the remainder of this chapter these authorities will be referred to as *contracting authorities*.

The European directives for public procurement of 2014 introduced new contracting authorities: the central procurement bodies. These are organizations that are instituted by member contracting authorities to obtain benefits from coordinated procurement activities. Central procurement bodies also need to comply with this legislation.

⁴Contracts of utilities and defence and securities are excluded.

In addition, we also have a special directive for the utilities (Directive 2014/25/EU). The utility directive covers entities operating in the water, energy, (public) transport and postal sectors as well as airports and maritime or inland ports or other terminals facilities, and carriers by air, sea or inland waterways for the pursuit of those activities as far as those activities are related to their relevant activity. A relevant activity means they are related to the core activities. The construction of a runway at an airport is a relevant activity, but the building of a hotel does not belong to the core activities of an airport. Public utilities also need to comply with public procurement law, albeit that in many cases the requirements are less far reaching than for normal contracting authorities.

Directive 2014/23/EU only relates to concessions for works and services granted by a contracting authority to external parties. An example would be the concession to build, maintain and operate a toll highway, and the concession to build and exploit a parking garage or a service concession for advertising facilities. In general, the four principles underlying public procurement law also apply here: a contracting authority can only grant these concessions after a bidding procedure in accordance with procurement principles.

The European procurement directives 2014/24/EU and 2014/25/EU define 'supplies, works and service contracts' as 'contracts for pecuniary interest concluded in writing between one or more of the contracting entities and one or more contractors, suppliers or service providers'. This definition has two important elements. First, the agreement must be in writing. A formal agreement does not need to imply a large, complex contract. It can also relate to a purchase order which has been sent by email. Or, it may simply relate to an invoice that has been accepted by the customer for payment.

Second, the agreement must stipulate an exchange of value between the parties. To be more precise, one party needs to supply goods and services for which the other party is prepared to pay. The exchange of value between parties assumes that both parties have rights and obligations. The one party needs to deliver, whereas the other party needs to pay. Payment does not necessarily have to happen in terms of money. Payment can also be made through exchange of a special permit or could simply relate to exchange of goods (barter). For example, a real estate company acquires land from a city against the promise that it will develop the area and will build a new city hall for the city council free of charge.

Hence, the European procurement directives apply to any contract for which a customer wants to pay with a return that can be put in monetary terms. As discussed before, the contract may relate to works or supplies, i.e. goods and services.

'Works contracts' are contracts with the objective of either the execution, or both the design and execution of certain activities. A 'work' means the outcome of building or civil engineering work taken as a whole which is sufficient in itself to fulfil an economic or technical function. Most construction works resulting in buildings, infrastructure, roads, bridges, etc. will qualify as 'works'.

In practice, contracts for the delivery of a ship, acoustic installations for a theatre, or pumps for a water purification installation have mistakenly been defined as a work: these are, however, examples of goods deliveries. Goods relate to physical products like computers, office furniture, helicopters, garbage trucks, etc. However, goods also relate to leasing and rental contracts of these physical products. If a contracting authority decides to lease its car fleet, this is considered to be a goods delivery and not a service. This is also true when a vessel is being rented. Additional services, such as installation services when acquiring a new telephone exchange, may be part of the goods delivery. This is important when it comes to assessing the total value of the contract involved.

Services are in fact a rest category. Services relate to assignments which can neither be considered a work nor a good. In reality, the differentiation between a good and a service is not always obvious. Standard software is to be considered a goods delivery; however, developing a customized software solution is considered to be a service. In this case, the way in which tendering takes place will not make any difference. However, when contracting for catering, differences may occur. Prefabricated meals and delivery of drinks, whether supplied by a vending machine or not, are considered to be a good. However, meals prepared in the kitchen of an on-site canteen are considered to be a service.

Services buying is fully subject to the European procurement regime. However, some special services fall under a 'light' regime. This is true for social, health and cultural services.⁵ The reason for this distinction is that services such as hotel and restaurant services, certain legal services, catering services, rail transport, personnel placement services, healthcare and education services do not lend themselves to cross-border trade. In all cases these services need to be acquired recognizing the general **public procurement principles** mentioned earlier. The light regime means contracts with a value of €750,000 or more where the general principles of public procurement apply, and a contract notice and a contract award notice are sent.

Public procurement principles Four major principles underlie each of the procurement directives. These are non-discrimination, equality, transparency and proportionality.

Framework agreement A framework agreement is an agreement between one or more contracting entities and one or more suppliers, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantities envisaged.

Escalation clause Price is linked to a price adjustment formula (index), which is based on external factors such as material costs or changes in labour costs.

FRAMEWORK AGREEMENTS

The contracting authority may possibly implement a **framework agreement**. A framework agreement is an agreement between one or more contracting entities and one or more suppliers, the purpose of which is to establish the terms governing the contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantities envisaged. These terms and conditions are related to a description of the characteristics of the works, goods and services to be supplied, the quality of the goods and services to be supplied, special delivery guarantees, payment and delivery conditions, and price **escalation clauses**. The framework agreements are used to deal with repetitive supplies in an efficient manner. When a contracting authority is confronted with repetitive purchases, such as when buying office supplies, it may contract for a framework agreement with a distributor, outlining the general conditions. Different departments may then call off against this framework agreement, placing their purchase orders directly at the distributor, while referring to the framework agreement.

For the classical contracting authorities Directive 2014/24/EU states that the term of the framework agreement is a maximum of four years, and for utilities and defence and security contracts, seven years. In exceptional cases it is possible to deviate from this period. This is possible, for example, in the case of high investment costs (e.g. MRI scanners for a hospital), or if the equipment requires that depreciation of its cost needs to equal the technical use period (e.g. coffee and drink machines).

Some people think that supply or service contracts may not go beyond the time period of four years. However, tender legislation does not set a maximum legal term for regular delivery and service contracts. However, when entering a maintenance and operations contract for an ICT system, the actual contract duration may take more years. From the point of competition (law), a longer period than five or six years should be justified, i.e. a high investment cost or for maintenance in relation to the technical lifetime of an installation.

EXCLUDED ASSIGNMENTS

As is usually the case, laws have exceptions. This also applies to procurement legislation. Exceptions from the European tendering obligation include employment contracts, purchase or rental of land and existing buildings, and contracts that have been declared

⁵In case of doubt, all these services are listed exhaustively in Annex XIV of the Directive.

secret. Examples are the purchase of weapon systems and ammunition by the Ministry of Defence, contracting special security services aimed at protecting society, and special contracts originating from international treaties.

During the COVID-19 pandemic, it was imperative that breathing equipment, face masks and protective clothing be delivered as soon as possible. Even the negotiated procedure without prior publication, which also has a number of formal requirements, was a delaying factor. The question was whether these public contracts could be purchased by the Ministry of Health and hospitals without applying the procurement directives. The EU Treaty offers a possibility for such special situations. On grounds of, among other things, the safety or the life or health of people, the procurement directives can be suspended. The condition is that the national measure must be suitable to ensure the achievement of the objective pursued and must not go beyond what is necessary to achieve that objective, according to the EU Court of Justice in the Ker-Optica case (C-108/09).

These examples show that exceptions are few. For almost all governmental purchases the European directives need to be complied with.

THRESHOLD VALUES

The European procurement regime only applies to contracts that meet certain **threshold values**. Table 8.1 provides an overview of the threshold values involved. The structural values, which are shown excluding VAT, are updated every two years.

Table 8.1 Threshold values of European directives on public procurement

Source: European Commission, Directive 2014/24/EU on public procurement, found here: ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en. Reproduced under Creative Commons Attribution 4.0 International (CC BY 4.0) licence.

Public authorities	Euros
Works contracts	5,350,000
Supplies contracts: central government	139,000
Supplies contracts: non-central government	214,000
Service contracts: central government	139,000
Services contracts: non-central government	214,000
<i>Utilities and defence authorities</i>	
Works contracts	5,350,000
Supplies contracts	428,000
Services contracts	428,000
Works and services concessions	5,350,000
Social and specific services	750,000
<i>Defence and security</i>	
Works contracts	5,350,000
Supplies contracts	428,000
Services contracts	428,000

Notes: The threshold amounts are adjusted every two years. Adjustments for 2022–23 took place in November 2021. The reason that the threshold amounts are adjusted every two years is the fact that they are based on the Special Drawing Rights (SDR). As the exchange rate between the SDR and the euro fluctuates, the threshold amounts need to be reconsidered regularly.⁶

Threshold values

Threshold values for procurement purposes represent the volumes beyond which public authorities are obliged to follow European legislation when making their purchase decisions. There are different threshold values for work, supplies and services.

⁶Special Drawing Rights (SDR) is an artificial ‘basket’ of currencies used by the International Monetary Fund as a unit of account.

As mentioned earlier, the reason that central governmental authorities (the state) have lower threshold levels than other contracting authorities is the result of the negotiations conducted in the context of the WTO and laid down in the GPA.

When estimating the value of a contract, all costs need to be recognized that will be incurred during the execution of the building assignment, the delivery contract or the service contract including all supportive activities (i.e. options). For example, when contracting for a new telephone exchange, the contracting authority, besides the acquisition cost of the installation itself, needs to recognize all costs related to the acquisition of the handsets and other accessories. The contracting authority is not permitted to split the total contract into separate lots to work around the European procurement procedures. A large assignment may not be split into a few smaller ones, just for this purpose. Tendering legislation has one exception to the prohibition on splitting, however, in that the value of any lot can be split by the buyer if the value of the lot to be awarded privately is less than €1 million, and the total value of the lots to be awarded separately does not exceed 20 per cent of the total value of the contract.

Notices and public procurement procedures

NOTICE

A European tender starts with a contract notice. A notice is in fact an advertisement through which the contracting authority invites interested suppliers to submit a proposal. The notice states the characteristics, the specific requirements related to the assignment and the selection criteria that prospective providers should meet. The notice is sent to the database of the Commission, TED. The electronic forms, i.e. templates for the notice to be made, can be found at <https://etendering.ted.europa.eu/cft/cft-documents.html?cftId=8742>. It is also possible to place orders on national platforms linked to TED.

Most European procedures differentiate between three types of notices: the prior information notice, the contract notice and the contract award notice. With the prior information notice, the contracting authority can reduce the legal minimum terms,⁷ i.e. time span, for the entire tender. To do so, the prior information notice should be placed at least 35 calendar days before the formal notice and 12 months prior to that date. The prior information notice also has another advantage in that prospective suppliers and providers will be informed early on about the intended tender so that they can prepare properly. This may be relevant for large construction projects, where market parties need to set up a combination or joint venture with other market parties in order to be able to submit their bids. This joint effort upfront can lead to much better bids for the contracting authority. A prior information notice is not compulsory.

The contract notice of the intended tender describes the project in general terms, necessary for prospective suppliers to decide whether the contract will be of interest. The contract notice of the tender on TED is compulsory for all contracts that exceed the threshold values (refer to Table 8.1); it needs to allow suppliers 30 days' minimum response time. When the contracting authority has awarded the contract to a specific supplier, it needs to inform market parties within 30 days through a contract award notice. This notice informs the market which supplier has won the tender and at what price.

⁷Terms are used in this paragraph to denote 'time span', i.e. 'lead time'.

EUROPEAN PROCUREMENT PROCEDURES

Of all the arrangements, the European procurement procedures have raised the most discussion. A European procurement procedure is defined here as 'the total set of rules and regulations that are aimed at selecting the best supplier for the best product against the best conditions, recognizing European laws and regulations'. **Public procurement procedures** are: (1) open procedure, (2) restricted procedure, (3) competitive procedure with negotiation, (4) negotiated procedure with or without prior publication, (5) competitive dialogue, (6) innovation partnership, (7) design contest and (8) dynamic purchasing system. Each of these procedures is described next.

OPEN PROCEDURE

The idea underlying the **open procedure** is that every market party within the EU should be able to subscribe to a public tender. The minimum term for submitting bids is at least 35 calendar days, starting with the day the notice is made public. In the case of a prior information notice being previously published, this term may be reduced to 15 days. When sending all tender forms electronically to interested market parties, the contracting authority may further reduce the minimum term by seven days. If all tender documents (including technical information and drawings) are sent electronically, the minimum term may be reduced by another five days.

Of course, contracting authorities are reluctant to reduce the reaction time for suppliers too much. The risk will be that too few bids are obtained and that bids will be badly prepared. This will serve nobody's interests.

RESTRICTED PROCEDURE

Although the term **restricted procedure** suggests otherwise, each EU supplier may compete for contracts that are tendered through this procedure. This procedure is different from the previous one because the tender process is split into two distinct stages: the stage of selecting suppliers that are interested, and the stage in which the preselected suppliers are invited for tender. Therefore, a better name might have been the preselection procedure. However, in this chapter we stick to the original term.

For a *contracting authority*, the minimum term for the notice amounts to 30 days, to be calculated from the day the notice is sent to TED. The contracting authority invites the selected companies to express their interest in the tender. The minimum number of market parties to be selected needs to be at least five, matching the prequalification criteria that have been published by the contracting authority.

For submitting their bids, the contracting authority needs to allow the preselected suppliers at least 30 days, again to be calculated from the day that the invitation to bid is sent. When a prior information notice has been made, this term can be reduced to 10 days. The contracting authority can reduce the term for submitting the actual bids by 10 days when submitting all tender documents electronically to interested market parties.

In cases where urgency renders the time limits impracticable (not to be confused with extreme urgency), the contracting authority may have a shorter reaction time. The time for prequalification of suppliers may then be only 15 days, whereas the time needed to solicit bids from the preselected suppliers may be reduced to a mere 10 days. The urgency may, however, not be due to circumstances related to the contracting authority itself.

Public procurement procedures Public procurement procedures relate to the procedures that public authorities need to adhere to when making procurement decisions. Different procedures are:
 (1) open procedure,
 (2) restricted procedure,
 (3) competitive procedure with negotiation,
 (4) negotiated procedure with or without prior publication,
 (5) competitive dialogue, (6) innovation partnership, (7) design contest and (8) dynamic purchasing system.

Open procedure Open procedure implies that every market party within the EU should be able to subscribe to a governmental tender.

Restricted procedure This procedure acknowledges two distinct stages: the stage of selecting suppliers that are interested and the stage in which the preselected suppliers are invited for tender. It is also referred to as the procedure with preselection.

For utilities (that are subject to a different directive, as was discussed earlier) the modus operandi is more or less the same. However, the response times that are allowed are a little different.

COMPETITIVE PROCEDURE WITH NEGOTIATION

Obviously, contracting authorities need procedures that allow for negotiation with suppliers. These procedures can be justified in the following situations:

- The needs of the contracting authority cannot be met without adaptation of readily available solutions.
- They include design or innovative solutions.
- The contract cannot be awarded without prior negotiations because of specific circumstances related to the nature, complexity or legal and financial makeup or because of the risks that are involved.
- The technical specifications cannot be established with sufficient precision by the contracting authority.

In such cases the government needs flexibility to engage in discussions with market parties. The competitive procedure with prior contract notice can be used in such situations. Here, the contracting authority can negotiate face-to-face with the selected market parties about the contents, execution and costs related to the contract, except for the final bids. The minimum requirements and the award criteria are not subject to negotiations. The contracting authority that applies this procedure motivates its decision in the award notice.

The competitive procedure with prior publication of a contract notice starts with a preselection of interested and qualified market parties. The term for this is 30 days minimum.

NEGOTIATED PROCEDURE WITH PRIOR PUBLICATION

The negotiated procedure with prior publication, like the restricted procedure, the competitive dialogue and the innovation partnership, is a procedure with preselection. There is, however, a difference. First, the minimum number of tenderers to be invited is three instead of five. Furthermore, there are no legal minimum terms for the registration phase. This period must be such that all tenderers have sufficient time in all reasonableness to prepare a quotation. Finally – and this is the main difference – the contracting authority may negotiate the tenders with the tenderers.

Furthermore, it is very important that the procedure be surrounded by sufficient guarantees for compliance with the principles of equal treatment and transparency. In particular, contracting authorities should announce in advance the minimum requirements which determine the nature of the procurement and which should not be changed during the negotiations. Award criteria and weighting factors should remain unchanged throughout the procedure, in order to ensure equal treatment of all economic operators. Negotiations should aim to enable contracting authorities to procure works, supplies and services fully tailored to their specific needs. Negotiations can cover all characteristics of the purchased works, supplies and services, such as quality, quantity, commercial clauses, as well as social, environmental and innovative aspects, as long as they are not minimum requirements.

NEGOTIATED PROCEDURE WITHOUT PRIOR PUBLICATION

As the name already suggests, the **negotiated procedure** without prior publication does not need to be published. The contracting authority may only apply this procedure in exceptional situations, such as an emergency or an unforeseen pandemic. More specifically this procedure can apply to the following situations.

- If in response to an open or a restricted procedure only irregular, unacceptable tenders or no tenders at all were submitted.
- If only one specific supplier was available due to technical or artistic reasons, or there were exclusive rights that may relate to the product or service to be acquired. In such cases the contracting authority needs to demonstrate and prove that only one supplier was available and that only one way of working was possible.
- If there is an *extreme urgency* due to unforeseen circumstances that cannot be ascribed to the contracting authority. Examples here are the acquisition of goods needed in case of war, pandemics or natural disasters (such as a wildfire or a flood).

Furthermore, the general principles apply that were discussed earlier in this chapter. In all cases the contracting authority should publish through TED which party has been awarded the contract.

In cases where a contracting authority or a public utility decides to opt for the negotiated procedure without publication of the contract notice, the reasons should be stated in the award notice.

Negotiated procedure

Here the contracting authority can negotiate face-to-face with market parties about the contents, execution and costs related to the contract.

COMPETITIVE DIALOGUE

Competitive dialogue is a special procedure which may be applied by a contracting authority in the same situations as those for the competitive procedure. The procedure is as follows. First, just like the restricted procedure, a preselection of qualified suppliers is made. This should result in at least three parties being interested and qualified for the assignment. Next, these parties are consulted for the solutions that best fit the functional specifications that have been submitted by the contracting authority. The dialogue ends when the contracting authority has selected the best possible solution that was presented by one of the suppliers.

Next, the contracting authority will put a detailed specification together and the suppliers that were solicited earlier are invited to submit their detailed bids. The contracting authority evaluates the bids on the basis of the most economical offer (rather than price only). Just like the open and restricted procedures, negotiation on the final arrangements is forbidden.

The minimum term for prequalification of market parties amounts to 30 days. For obtaining the bids and final offers, no minimum terms are mentioned in the European regulations. In cases where the contracting authority decides to go for competitive dialogue, it should indicate such a decision in the procurement dossier.

INNOVATION PARTNERSHIP

This procedure aims to foster innovation. Contracting authorities set up a partnership with one or more companies to develop a product, a service or a work. Innovation means the application of a new or significantly improved product or a new or significantly improved process. Innovation partnership is particularly aimed at specific sectors, i.e. problems. It is meant 'to develop and acquire innovative solutions for problems related to mobility, transport or waste recycling, robots in healthcare or systems for monitoring people in large groups'.

This procedure needs to meet several conditions. An important condition that needs to be met is that off-the-shelf solutions are not available. In addition, the contract shall be awarded on the sole basis of the award criterion of the best price-quality ratio.

Also, this procedure requires preselection of potential suppliers. After preselection, the contracting authority engages in a discussion on potential solutions which are submitted by the suppliers. It is important for the contracting authority to present clear minimum conditions that need to be met by the designs to be submitted. The work that is undertaken by suppliers during this negotiation phase (which is referred to as the development phase) needs to be compensated in a fair way.

In cases where the development stage does not deliver the intended result, the contracting authority may terminate the procedure. However, it needs in such cases to provide a clear motivation. When during the development stage a suitable solution has been obtained, the third stage starts, i.e. the commercial phase. In this phase, the preselected suppliers will be invited to submit a detailed bid. Bids will be evaluated using previously communicated award criteria based upon the best price-quality ratio. At this stage, no negotiations between parties are permitted.

DESIGN CONTEST

Design contest The design contest is a procedure that is used to obtain a plan or a design based on competition between expert parties. The design is judged by a professional jury.

The **design contest** is a procedure that is used to obtain a plan or a design based on competition between expert parties. The design is judged by a professional jury and suppliers may be rewarded in terms of a monetary value or otherwise. The design contest is used for architectural work and also for the design of complex ICT architectures. It may also be used for procurement projects that require a high degree of innovation. Contracting authorities are free on how to orchestrate a design contest. It is not necessary to explain why a design contest is deemed necessary. There are no specific terms, i.e. lead times, that need to be considered.

DYNAMIC PURCHASING SYSTEM

The dynamic purchasing system – a completely electronic process during the period of validity of the purchasing system – aims to facilitate buying standard goods and services. In fact, the contracting authority allows suppliers to present their products and services at a restricted digital marketplace. The marketplace is actually used by the internal customers who belong to the same organization as the contracting authority. The dynamic purchasing system is applied for commodities that are ordered frequently and for which a large number of suppliers is available. Suppliers may register based upon an invitation by the contracting authority, which is communicated using TED. The suppliers that register are screened by the contracting authority using their predefined selection criteria. Next, the approved suppliers will be granted access to the dynamic purchasing system. The contracting authority is not allowed to maximize the number of suppliers beforehand. Suppliers have 30 days maximum to register after the information notice.

The contracting authority and utilities need to inform suppliers as soon as possible after the deadline. However, new suppliers may also register at a later stage. In such cases the contracting authority needs to inform the supplier within 10 days whether they have been approved.

The dynamic purchasing system therefore allows a governmental institution to create a separate marketplace for specific goods and services to accommodate its internal

customers. The marketplace allows a certain degree of freedom to the internal customers but promotes doing business with preselected suppliers. In this way, the marketplace reduces transaction costs for the governmental institution involved and may generate financial benefits at the same time.

Once the dynamic purchasing system is set, the tenderer will apply the restricted procedure for inviting the selected candidates. In the case of specific contracts, the tenderer will invite all tenderers who have been admitted to the system or to a particular category to which the specific assignment belongs. This occurs simultaneously for all tenderers.

All in all, the public procurement professional can choose from between eight procurement procedures. Each of these can be used depending on the circumstances. Each of the procedures meets the four principles underlying public procurement. Given the strict response time that needs to be monitored, professional project management is a prerequisite for every public tender project.

Procurement process

DEFINING SPECIFICATIONS

A specification is a description of what the contracting authority intends to buy. Specifications are important since they are the input for the consecutive stages of the procurement process model. This observation is very relevant when tendering for public contracts. The specifications will not only be decisive in terms of what supplier qualification and contract award criteria to use – these criteria should be the subject matter of the contract – but these will also determine the contract model, i.e. the actual contract terms to be agreed upon with the supplier. One of the principles to be met during a European procurement procedure is the principle of proportionality. This means that the specifications and conditions should be in line with the nature of the assignment and linked to the subject matter. This is one of the basic principles of public procurement law.

When defining specifications, contracting authorities should comply with the principle of non-discrimination. Specifications should be defined in such a way that free trade is not impeded. Besides brand specifications, national norms and standards belong to the most popular barriers in interstate trade. The technical requirements for buying computers may serve as an example. In some countries, it is common to refer to Intel processors when buying laptops and PCs. This is considered by the European Court as unnecessarily constraining free competition. Therefore, this practice has been ended. Governmental authorities will be penalized if found to be in breach. Therefore, it will not come as a surprise that any brand and supplier-specific specifications are forbidden. These are only allowed if the contracting authority is not capable of describing specifications in supplier neutral terms.

Also, the principle of equal treatment is of great importance. The contracting authority should recognize that if some companies have been involved early in the preparation of the tender process, this could have resulted in a competitive advantage. This is because these companies could have acquired crucial knowledge and insight with regards to the intent and expectations of the contracting authority. In cases where a supplier has acquired prior information, they need to be excluded if their participation in the early phases would lead to a distortion in the competition between the other tenderers.

SUPPLIER SELECTION

Contracting authorities will sometimes mix up supplier selection and bid-award criteria. Selection criteria are the requirements that the contracting authority will use to select all preselected suppliers. At this stage the question is, which suppliers might qualify in principle to achieve a successful completion of the assignment? Bid-award criteria are used to evaluate the detailed supplier proposals. How is the preselected supplier going to execute the assignment and at what cost? Mixing up supplier selection criteria and award criteria is a frequently made error in public procurement practice and, hence, the basis of many cases that have been brought to court.

Memo 8.3 illustrates that selection criteria relate to the quality of the supplier organization and do not relate to the quality of the performance to be delivered. What selection criteria to use is described extensively in the European procurement directives. The procedures for the public utility sector, however, are far less explicit. This sector, when selecting suppliers, needs to comply only with the principles of non-discrimination, equality, transparency and proportionality.

Memo 8.3

Selection and award criteria

When publishing its announcement for a tender related to a special investigation, the Greek municipality of Alexandroupolis communicated the following award criteria: demonstrable experience, personnel capacity, expertise of the research agency, capacity available to conduct the investigation at a predetermined time interval, academic reputation of the agency. The European Court decided that criteria

that are not aimed at assessing the most economical offer, but in essence are aimed at assessing the supplier's potential for a successful completion of the assignment, cannot be used as award criteria.



Source: Lianakis Case C-532/06, 24 January 2008.

For contracting authorities, criteria for qualitative selection can be divided into two distinct categories: exclusion criteria and suitability criteria relating to suitability to pursue the professional activity, economic and financial standing and technical and professional ability.

Exclusion criteria relate to the personal situation of suppliers and are further divided into mandatory and optional grounds for exclusion. Mandatory exclusion criteria are: participation in a criminal organization, corruption, child labour and other forms of trafficking in human beings, fraud with financial interests in the EU, and money laundering.

In case of optional grounds for exclusion, a supplier *may* be excluded from participation in a contract if:

- They are bankrupt, where their affairs are being administered by the court, where they have entered into an arrangement with creditors or where they have suspended business activities.
- They are the subject of proceedings for a declaration of bankruptcy.
- The contracting authority can demonstrate by appropriate means that the supplier is guilty of grave professional misconduct.

- The contracting authority has sufficiently plausible indications to conclude that the supplier colluded with other suppliers aimed at distorting competition.
- The supplier has shown significant or persistent deficiencies in the performance of a substantive requirement under a prior public contract which led to early termination of that prior contract, damages or other comparable sanction.
- The supplier has been found guilty of serious misrepresentation in supplying the information required for the verification of the selection criteria, or is not able to submit the supporting documents as required.
- The supplier has undertaken to unduly influence the decision-making process of the contracting authority, to obtain confidential information leading to advantages in the procurement procedure.
- The supplier has not fulfilled obligations relating to the payment of social security contributions or taxes.

Parties which have not been excluded are evaluated using suitability criteria. These criteria relate to financial and economic standing and technical or professional ability (proven performance). Based upon these criteria, the contracting authority needs to assess whether the party involved will be sufficiently qualified to execute the assignment. Suitability criteria can be divided into absolute and relative suitability criteria. The absolute suitability criteria are also referred to as minimal ('knockout') requirements. If a supplier is not able to demonstrate specific expertise and experience in a certain area, which is crucial for the completion of the assignment, this may lead to a decision to exclude them.

When using the public procedure, only minimal requirements can be used. In the case of the restricted procedure, the contracting authority may also use other voluntary requirements, also referred to as qualitative selection criteria, in order to reduce the number of future suppliers to five (restricted procedure) or three (competitive dialogue, negotiated procedure with notice). When doing so, the method through which suppliers will be evaluated needs to be objective and be communicated to the parties involved in advance. Again, in all cases, the criteria to be used should be non-discriminatory, transparent, equal and proportional and should link to the subject matter. An example of a criterion that is not linked to the subject matter is the condition that consultants must demonstrate they act in a socially responsible manner. In addition, this is not a selection criterion, but a condition. So, requirements imposed on the supplier should be in line and in balance with the nature and scope of the assignment.

Suppliers that were not selected are to be informed about the reasons for their lack of success. In cases where a supplier requests more detailed information, the contracting authority needs to deliver this information within 15 days. In this way, the contracting authority needs to adhere to the principle of transparency.

SOLICITING BIDS AND AWARDING CONTRACTS

The final stages of the tender process relate to evaluating the bids received, the initial award of the bid, informing non-selected parties about refusal and, finally, awarding the contract to the supplier selected. In general, all contractors will receive all tender documents at the same time, including the technical requirements, selection and award criteria, the invitation to bid (request for quotation; RFQ) and a draft agreement. When preselecting potential suppliers, the government should ensure that criteria are proportional, i.e. reasonable in relation to the work to be undertaken (refer to Memo 8.4).

Memo 8.4

Disproportionality

During the early 1990s, two municipalities in an EU member state tendered jointly for collecting waste and garbage from about 28,000 addresses. As a minimal requirement, it was communicated that the waste collector selected should demonstrate that it had conducted similar assignments from municipalities of over 40,000

inhabitants. The court decided such a minimal requirement was disproportionate. The defence of the municipalities that during the coming years the number of addresses would be increased to 30,000–40,000 was not considered by the court to be valid.



To determine the most economically advantageous tender, the buyer can choose between:

- best value for money
- lowest costs calculated on the basis of cost-effectiveness, or
- lowest price.

Just going for the lowest price means other aspects will not be considered. Of course, all bids received will be checked for compliance with all technical and quality requirements. Suppliers that do not meet the knockout criteria will be removed from the list immediately. The decision process in this case is fairly simple. Discussions about quality, delivery times, services, etc. will not take place.

Going for the lowest price is practical in the case of buying straightforward commodities, where price may be the only decisive criterion. Such may be the case when buying electricity, gas or other natural commodities. As soon as products and services become more customized, using the criterion of best economic offer will be the preferred choice.

During the process of supplier selection and soliciting the best offers from suppliers, the contracting authority may decide to use electronic auctions. When doing so, all parties that are invited need to be fully informed and prepared to participate. In advance, they need to be informed about how the contracting authority will award the contract. It should also be clear from the outset how suppliers can check on their relative position to the best offer during the course of the auction.

When going for the best value for money, aspects other than price will play a dominant role. These aspects may include quality, technical merit, aesthetics, functional and innovative characteristics, accessibility, design for all users, customer service, technical support, date of delivery or period of completion, and execution, environmental or social aspects. However, the contracting authority may also use other criteria as long as they are linked to the subject matter of the product or service to be delivered and they have been communicated in advance.

This list of criteria already shows that not all criteria need to be objective (and measurable and verifiable and linked to the subject-matter of the public contract). If subjective criteria such as aesthetic characteristics are used, it should be explained how these will be assessed, otherwise the contracting authority may be vulnerable if the case is brought to court. All of the criteria (including the weight factors that will be used) need to be communicated and cannot be changed during the tender process. It will not come as a surprise that most of the jurisprudence on public procurement is related to the criteria and weight factors that have been used, their legitimacy and the changes that have been made in the process.

As discussed before, the contracting authority needs to communicate in its initial announcement, but in more detail in the tender documents, how bids will be evaluated. More specifically, it needs to indicate whether it will award a contract based on the lowest price or best value for money. Next, it needs to communicate the criteria and weight factors that will be used. The assessment grid needs to be supplied to each of the suppliers. As a consequence, the assessment grid cannot be changed during the tender process. Doing so will place the contracting authority in a difficult position when its case is brought to court.

In reality, this procedure creates considerable problems and challenges for contracting authorities. Procurement processes and their outcomes are, by definition, sometimes hard to predict. In the course of the action it may appear that other aspects need to be considered than were previously envisaged. The buyer may come to the conclusion that the assessment grid needs to be changed. In such a case, it does not have any other option but to stop the procedure and start a new one. This is one of the great disadvantages of the current European procurement legislation.

After the evaluation round, the supplier to which the contract has been awarded should be made known to the public. The procedure is as follows. The buyer informs in writing, by letter and by email all suppliers who have been unsuccessful. In this letter, the reason why the contract has been awarded to the winning tenderer must be explained. Next, the buyer stipulates that the contracting authority will execute the contract, only after 20 days have expired during which the non-winning tenderers may object to the decision.

The winning tenderer at the same time receives a letter indicating that the contract will be awarded to them, provided that no formal objections or claims by all other parties are received, and provided that both parties come to a final agreement. This 20-day period, which is known as the Alcatel-period,⁸ allows suppliers that did not win the tender to formally object to the decision of the contracting authority.

Simultaneously with the award decision to the winning tenderer, the other tenderers will be informed of the award decision and the relevant reasons why the contract was not awarded to them. Relevant reasons include in any case the characteristics and relative advantages of the chosen tender.

Earlier in this chapter we discussed the obligation of the buyer to inform market parties about a decision to award the contract to a certain tenderer. In all cases the motivation should be fact-based. When a supplier who has been declined asks for more detailed information, the buyer should deliver this information within 20 days after having received the formal request.

Such a motivation may be omitted when more detailed information may not be in the interests of the public, or when it may damage the commercial interests of the winning supplier. To avoid unnecessary friction, it is generally recommended to organize a so-called 'lost bid' meeting. Here the buyer may explain their decision and may answer specific supplier questions.

When all parties involved have signed the contract, the contracting authority needs to publish the winning offer within 30 days after the decision using TED. This award notice states to whom the contract was awarded and for what price. In cases where the price is commercially confidential, the price can be omitted. Again, the buyer may refrain from omitting the prices in cases where information may damage the commercial interests of the contracting authority.

⁸After the EU Court case initiated by Alcatel (Case-81/98).

Finally, the European directives on public procurement also prescribe that all documentation related to the tender be archived. This archive needs to contain contact data of the contracting authority, the characteristics, volume and nature of the assignment, the procedure that has been followed, names of all preselected suppliers, i.e. all suppliers that have been invited to bid, the buyer's motivations, special circumstances and, if the contract was not awarded, the reason for this.

Implications for public procurement

In general, the European directives on public procurement have met with large resistance, as much in the public procurement community as in the circle of government managers and politicians. This resistance has caused relentless complaints concerning the complexity of the directives themselves, their lack of flexibility, the terms that need to be adhered to for publication and answering questions, and the complex (project) administration that is required for the application of these directives.

Many of the challenges and concerns relate to the fact that governmental authorities have not professionalized their procurement organization, systems and staff. A successful implementation of European procurement legislation requires procurement procedures that are highly structured and a professional organization, where procurement tasks, authorities and responsibilities are clearly defined and communicated to all departments and stakeholders involved. This is what political and government leaders have neglected to do.

The core of this problem lies in the management culture that prevails in many governmental authorities. Decision-making on important purchases is of a highly political nature. Procurement decision-making in government suffers from a lack of rationality and the absence of a fact-based mentality. As we have seen earlier, the budget culture within governmental authorities stimulates overspending of budgets, rather than going for procurement savings or creating best value for taxpayers' money. This subject has a low priority on the political and managerial agenda. Research into compliance rates indicates that compliance with the European procurement directives leaves much to be desired.⁹ In most European countries compliance is far from what may be expected. However, follow-up is slow and haphazard, and sanctions are missing. This all makes implementation of this European legislation a slow and tedious process. This is a pity since experience shows that implementation of the European procurement directives creates significant benefits: member states report cost savings of up to 30 per cent.

The most important criticism is that the European directives on public procurement have been developed without a clear eye on the present structure and position of the procurement function within governmental authorities. In themselves, the European directives make a lot of sense. However, the governments in many European countries are not capable of handling them appropriately. The objectives that are at the basis of the European procurement legislation cannot be realized by legislation alone. More effort is needed for this.

⁹See e.g. Significant Consultants, *Procurement Compliance Report 2012, 2014*, the Netherlands.

The directives encourage, in a rather artificial way, more professional behaviour from governmental buyers. However, if politicians rely on legislation only, without a sharp eye on what institutions can actually handle, the result will be a lot of confusion. An impressive control apparatus will be needed to secure compliance. Implementing the rather complex procedures requires a wide acceptance by the procurement and government community. Large investments in communication and training programmes will be necessary to create such an acceptance. The procurement function within government needs to be considerably strengthened. The same holds for the often weak administrative organization that should be improved to monitor and report effectively on the implementation of the European procurement directives.

Summary

Public procurement involves a lot of money. On average, EU member states contribute significantly to their GDP through their procurement spend. Their spend on goods, services and projects makes up a large sum of money (estimated to be close to €2,500 billion in 2020) and is spent on a wide variety of products, services and works.

One of the purposes for which the EU was founded was to create free cross-border trade between its member states. As we have seen, the EU Treaty has significant implications for governmental procurement. Governmental procurement differs from procurement by private enterprise in that it primarily serves political objectives and plans. In reality, political ambitions conflict with the intention to spend taxpayers' money as economically as possible. Because of political ambitions, governmental authorities prefer to do business with local and national suppliers. The budget culture within the government does not stimulate effective spending aimed at achieving procurement cost savings, where possible, or striving for the best price/value relationship.

The European directives for public procurement try to harmonize procurement policies across European member states. The most important principles underlying these directives are non-discrimination, equality, transparency and proportionality. These principles are reflected in four European procurement directives: procurement for governmental authorities, procurement for public utilities, concessions, and defence and security. Over the years the member states have implemented these directives into national legislation. These together create a set of rules and guidelines that contracting authorities need to follow in their dealings with external suppliers and service providers. As we have seen, these rules and regulations are stricter for classical governmental authorities than for public utilities, which enjoy a greater degree of freedom.

As a result of the general EU procurement directives, contractors are not allowed to use brand or specific supplier specifications since such practices may impede free trade and free competition between market parties. The transparency principle holds that contracting authorities are able to explain their supplier selection decisions. As a consequence, the criteria and weight factors used to assess suppliers and their bids need to be clear and communicated early on in the process.

Another major characteristic of the EU procurement procedures is that contracting authorities need to respect certain financial thresholds which determine whether the European procurement procedures should be followed. These threshold values are different when contracting for works, goods and services and are different for central and local government.

In fact, governmental authorities can choose from the following European procurement procedures: (1) open procedure, (2) restricted procedure, (3) competitive procedure with negotiation, (4) negotiated procedure with or without prior publication, (5) competitive dialogue, (6) innovation partnership, (7) design contest and (8) the dynamic purchasing system. Each of these procedures has strict requirements in terms of whether market parties should be notified before an invitation to tender is made public, whether or not market parties will be preselected, how to solicit bids from competing suppliers, how to evaluate the bids obtained from suppliers, how to award the contract and how to notify the suppliers that have been unsuccessful, and how to explain the supplier choice that has been made. Given the lead times that are prescribed in the procedures, proper and effective project management is a must. It is almost impossible to make changes after the procedures have been put into motion. Where there is a substantial change to the contract, that will require a new tender.

Most of the jurisprudence and claims from suppliers are related to infringements of these procedures as well as violations with regards to the basic principles underlying the directives. Applying these directives requires a professional procurement organization, which, in general, is absent in many countries. In the area of public procurement there is still a lot of work to be done.

Assignments

- 8.1** Why do governmental authorities often have a preference for dealing with local or national suppliers? Provide and discuss some recent examples from the press.
- 8.2** Describe the most important principles underlying the EU Treaty. In what manner do the EU procurement directives contribute to the objectives of the EU Treaty?
- 8.3** What procurement procedures are available to governmental authorities in Europe? Describe each procedure and indicate when and for whom it would be applicable by using the web links provided in this chapter.
- 8.4** A police organization in one of the EU member states wants to tender for a new car-leasing contract. The police organization is subject to EU procurement law. Which procedure would you recommend? Prepare a detailed project plan based on this procedure.
- 8.5** When buying photocopying equipment for a small city, which criteria would you use: (1) lowest price or (2) best economic offer? Why?

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Integrative Case II.1

Procurement of multi-functionals in the Blue Lake Hospital

BY ARJAN VAN WEELE

CASPER HESP¹

This case describes the issues associated with procuring facility goods and services. Although based on actual situations, certain shortcomings and problems have been accentuated here and there. The figures have been modified.

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Memorandum

To : Patricia Moist, Senior Procurement Officer
From : Charles Mooney, Procurement Manager
cc : John Porter, Financial Officer
Regarding : Internal audit of multi-functionals² procurement expenses
Place & Date : London, 24 March 2020

Dear Patricia

Thank you for accepting my request to take up the issue of multi-functionals at our Blue Lake Hospital (hereafter referred to as BLH). Your expertise and experience here at the hospital will be very useful in improving our procurement efforts in this important spend category and making them more professional.

As discussed at our meeting last week, I hereby send you the initial findings from the Quick Scan we commissioned of the procurement process flow for multi-functionals, which was performed two months ago. The scan was recently done by Petra Hartman, as part of her management trainee programme.

John Porter and I have read the report with some alarm. We believe that the procurement processes at BLH, in general, and for facility and IT goods and services in particular, need to become more professional. We hereby request that you devise an action plan as soon as possible for solving the many shortcomings identified. Since we would like to maintain momentum on this point, we ask that you have this ready for our management meeting next week. We are eager to know what you see as the most significant problems. More particularly, we are interested in hearing about the measures you propose for alleviating these problems.

We realize that our briefing may be somewhat incomplete. If you feel you are missing any valuable information, kindly inform us of what you still require. It is not yet necessary to present a detailed project plan at this stage. That is a concern for later on. Please prepare your report as a PowerPoint presentation. We will have 30 minutes of time available for you.

We look forward to hearing your proposals. Good luck!

Charles

Attachment: 1

¹Casper Hesp is Head of Procurement at one of the top clinical hospitals in the Netherlands.

²'Multi-functionals' comprise all printers, fax machines, copiers and digital storage devices.

Attachment 1

Memorandum

To: : Charles Mooney, Procurement Manager
 John Porter, Financial Director
 From: : Petra Hartman, Business Controlling trainee
 Regarding: : Copiers and faxes audit trail
 Place & Date : London, 25 January 2020

Dear Mr Mooney and Mr Porter

As part of my management trainee programme at BLH, I performed an audit, at your request, of the procurement processes and expenses related to so-called multi-functionals. Your assignment was to collect data on the procurement expenses for this spend category, analyze the existing list of suppliers, and review the checks and balances in the purchase-to-pay cycle.

I will briefly summarize my results in this report. They are grouped according to the following topics:

- General findings with regard to BLH's relationship with its suppliers
- Contract information and contractual relationships
- Specific findings with regard to the order-delivery-payment process

My overall conclusion is that there is a significant lack of control of both expenditure and managerial and procurement processes in the spend category investigated. In other words, there is considerable room for improvement in administering and managing this class of expenses. It is beyond my capabilities to design a system for doing so. I would suggest that you consider alerting the procurement organization at BLH about the results of this study and ask them to develop an action plan to address this matter.

The investigation was limited exclusively to the office environments for the primary processes and internal processes. The in-house Central Printing department was not part of the study. Any printers directly linked to a medical process were also excluded from the study. The investigation was carried out in two stages: one involving a physical inventory and the other a series of interviews with internal customers. Over the course of two days, nine staff members participated in the interviews, with each meeting lasting about an hour.

The deliveries were created based on plans that show the existing equipment. In addition, there were other documents that list in detail where each type of machine is located, the volume it produces, what its IP address and patch number are, etc.

General findings regarding administration and use

- Based on the physical inventory performed, we determined that BLH currently uses copiers, fax machines, printers and scanners. These systems are used to prepare and administer the documents needed to complete all processes.
- There are 612 basic systems in total, from no fewer than 21 different manufacturers, with 612 different types of devices in use. The total number of printers, alone, accounts for 82 per cent of the total equipment fleet. In terms of the fax equipment, this amounts to 83 machines of widely varying ages. Appendix 1 provides a summary of the equipment currently in use.
- Under the existing situation, documents are created, de facto, by each device. A document is printed out; then, the production phase is carried out on a copier, with the document eventually being faxed out, as necessary. Documents are created, revised, duplicated, archived and distributed manually. The document processing is

in no way integrated. It goes without saying that this method of working involves higher costs and is not very flexible or productive and that the risk of error in this process is high because of the manual handling.

- A variety of applications are in use for storing documents related to primary and internal processes. Documents needed for archiving are manually filed in binders. This follows a simple administrative registration process, with the storing, searching and recovery of documents all being done by hand.
- During our interviews, it became clear that not a single person interviewed knew how much such processing costs per document. None of them could indicate whether there was any form of internal cost allocation at all for all the types of documents.
- Moreover, in a broader context, it became apparent that there was no information available regarding the levels of disruption – in terms of frequency and nature – of the equipment and supplier response times.
- Of the people interviewed, 35 per cent indicated that they viewed recent additions of primarily colour

- printers as surprising and troubling, given the higher cost per page compared to black-and-white printing.
- The BLH has over 250 different types of documents – everything from basic letterheads to the forms used as part of various internal processes. These documents are managed by the Facilities Department. This process costs a great deal of time and money, due in part to the manual handling related to processing requests from internal customers, consulting with the printer about proofs, ordering and stocking documents, initiating logistical processes, and performing internal budget administration for all this.
 - The Facilities Department is also responsible for furnishing toner for the printers and copiers. In addition to the usual difference between only black toner, on the one hand, or colour toners, on the other, they must also deal, in terms of both execution and actual supplies, with over 600 different kinds of devices and, thus, also with a similar number of toner cartridges, since each individual piece of equipment now in use needs its own unique toner cartridge. Because there have been many complaints in the past about the supply of toner cartridges, the Facilities Department now keeps a substantial stock on hand for all of the models.
 - The departments surveyed indicated that 80 per cent of all documents were printed single-sided. Automatic double-sided printing thus constitutes 20 per cent of the total volume.
 - Of the people interviewed, 22 per cent indicated that they absolutely would like to have the option of printing in colour. This pertained primarily to flow charts and financial documents.
 - We calculated the current cost per page based on the volume inventory for the decentralized environment and usage and contract information subsequently obtained from BLH. Assuming 506,884 pages printed per month, the average printing price in the decentralized environment is €0.06 per page. This implies an amount of €367,000 on an annual basis, not including the cost of the printing materials or sales tax (Appendix 2).
 - Every quarter, new suppliers are added to the list. The total number of suppliers presently stands at 21 (end of 2019).
 - We did not encounter any procedure for selecting suppliers in a structured manner. Neither could we find instructions for drawing up requests for quotations (RFQ), supplier selection, pre-procurement market research (RFI), etc. Our discussions with people left us with the strong impression that suppliers are chosen based on past experience and the personal relationship network of individual managers at BLH.

Ordering process and payments

- It is not unusual for suppliers to submit their proposals directly to the internal customers at BLH by email. Emails are not saved properly, making the tracing and tracking of delivery agreements between the two parties difficult. Procurement files are far from complete.
- In many cases, purchase order numbers are not recorded on the invoices received (estimate: 40 per cent).
- Analysis of the Purchase Ledger account revealed a great number of invoices for multifunctional devices that have been paid (presently 1058). The average amount due on these invoices is relatively low (€345).
- A comparison of the invoices with the contract agreements (to the extent these were available) brought to light that many of the items billed were not consistent with the agreements made (for example, the amounts charged were too high; additional call-out charges were billed; the same with service fees, etc.).
- Some suppliers send the BLH bills with interest, arguing that the due dates have passed. These bills are generally paid.
- Based on the interviews conducted, there would appear to be no systematic review of supplier performance.

Assignments

- 1** What would you consider to be the most important problems in procurement at Blue Lake Hospital?
- 2** Assess the procurement process for printers and copiers using the procurement process model. What would you consider to be the major weaknesses in the procurement process?
- 3** What actions would you recommend to gain greater control of the spend and copier costs at Blue Lake Hospital?

APPENDIX 1

Equipment presently in use at Blue Lake Hospital (BLH)

The printer environment at BLH currently consists of 216 laser printers, 43 laser MFPs, 217 inkjet printers, 4 inkjet MFPs, 8 copiers, 83 fax machines, 40 scanners and 1 plotter. There are 238 different types of devices. Printing operations require a great many different cartridges.

Equipment

Total number of devices:	612
Number of monochrome laser printers	199
Number of colour laser printers	17
Number of laser MFPs	43
Number of inkjet printers	217
Number of inkjet MFPs	4
Number of fax machines	83
Number of copiers	8
Number of scanners	40
Number of plotters	1

Brands / Suppliers	Equipment	Models
Agfa	1	1
Avery-Dennison	3	2
Brother	1	1
Canon	108	41
Citoh	2	2
Epson	10	8
FUJITSU	2	1
GCC Technologies	1	
Hewlett Packard	431	156
Kodak	1	1
Kyocera Mita	2	1
Microtek	1	1
Nashuatec	19	7
Océ	4	3
Ricoh	2	2
Tally	2	2
TEC	4	1
TLP	1	1
Tlt	1	1
Toshiba	11	7
Xerox	1	1
Generic	4	

	Monthly volumes
Black & white	465,074
Colour	41,810
Total	506,884

APPENDIX 2

Financial summary

1 Toner cartridges purchased	€8876.11
2 Supplies purchased, such as fusers, cables, Kingston, power supply, developer kits	€1541.66
3 Depreciation: 47 MFPs purchased (total spend €37,328.00). Based on 47 printers, that equates to $(37,328 \times 2\% \text{ depreciation per month}) \times 10$	€7465.60
4 Credits NMA maintenance	€208.00
5 Ricoh/Nashuatec costs: Colour volume is 24,500 per month; black & white is 483,333 per month	€9336.75
6 Veenman costs: HPs based on 64,000 black & white per month	€848.00
7 Océ 8545 costs: 2 units, with uplift, actual volume 16,000 pages per month. Overall print volume is 35,000	€1612.00
8 Océ 1055 costs: 2 units, with uplift, actual volume is 16,000 pages per month. Overall print volume is 25,000 copies per month	€754.00

Monthly costs: €30,642.12

Annual costs: €367,705.44

Integrative Case II.2

Technix: material supply problems in offshore dredging in Rio

BY ARJAN VAN WEELE¹

This case describes contractual and material supply problems in an international offshore dredging project. The case is extracted from several company practices. Any resemblance with reality is based on coincidence. The case study is written for educational purposes only. The names of any persons and companies named within are fictitious, as are any numbers mentioned in this case.

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Introduction

'What a mess', Hans Willems, director of Technix BV, sighed while he was reading the message that had just come in on the fax machine. The fax stated a damage claim for the total sum of €2.1 million from one of Technix's most important clients, NedWorks. Willems stared at the short message on the paper for a long time. The telephone conversation he had had two days ago with Jan van Daal, purchase manager at NedWorks, regarding a quality problem with parts delivered by Technix BV did not go well at the time.

'We've been on good terms with NedWorks for at least 10 years and now this happens', he said with disbelief. Hans Willems was surprised about NedWorks' strong reaction. The claim for damages concerned an order delivered by Technix last year and – this was the message he had received – the products did not comply with the standards for the dredging project in Brazil, which NedWorks had been carrying out for some time. Before deciding on any action, Willems decided to list all the points first.

1. Technix BV

Since 2006, Willems has been the director of Technix BV, a medium-sized trading company active in high-quality technical components for the building industry and the offshore market. The turnover for 2019 was €19.5 million. The company is located in Hendrik Ido Ambacht in the Netherlands, close to the international contractors, most of which are situated in the

Rotterdam Europort. The company has 25 employees. Technix obtains its goods from a large number of manufacturers, mostly located abroad. For many of these manufacturers, Technix holds an exclusive agency contract. Based upon such a contract, Technix sells the manufacturer's components to its clients. In many cases, the delivery is not made by Technix, but directly by the manufacturer represented by Technix. Technix's most important clients are active in the offshore and dredging sector and the international construction industry. Over the years, Technix has acquired a reputation as a reliable business partner. This can be concluded, among other things, from the long-standing relationships Technix has with its numerous clients.

2. Relationship Technix–NedWorks

One of Technix's largest customers is NedWorks BV, established at Rotterdam, The Netherlands. NedWorks is a renowned, international dredging company, operating all over the world. The relationship between NedWorks and Technix began more than ten years ago. In 2005, Technix began supplying parts for NedWorks' dredging machines and cutters, adapters and cutter teeth in particular. These parts are needed for carrying out dredging works. A cutter suction dredge sucks up the soil/rock cut loose by the cutter and pushes it away via pipelines. The cutter has adapters welded to a number of arms/wings which serve as a setting for interchangeable teeth. Obviously, recognizing the often-harsh operating conditions, the number of teeth used is many fold compared to the number of adapters (refer to Appendix 1).

The cutters, adapters and cutter teeth were originally manufactured by the American Machine Company (AMC) and, currently, Technix is the only distributor of these products in the Benelux. AMC closed down in 1995, but the production was taken over by Kilkenny Tools & Machines (KTM), established in Kentucky, USA. Technix considered KTM to be a worthy successor and continued business with this manufacturer. KTM soon decided to produce the cutters itself, but to outsource the production of adapters and teeth to a specialist supplier in India. Technix did not communicate this so-called subcontracting to its clients.

Until 2015, NedWorks did not have general conditions of purchase. The goods involved had been bought from Technix at the time and the delivery was made directly from the manufacturer to the site where NedWorks was operational in the world, without any interference from Technix. Technix acted as an exclusive distributor for KTM.

In 2015, a new procurement manager came on board at NedWorks. As part of his reorganization, he set up general

¹Author wants to express his gratitude to Mr Ing John van der Puil for his valuable comments.

purchase conditions and sent these to all suppliers including Technix (refer to Appendix 2). At that time, he requested Technix to email a copy of all orders that Technix had placed with KTM. He also instructed Technix to send a copy of all shipment documents directly to NedWorks for the goods to be delivered to sites.

3. Relationship Technix–NedWorks in a historical perspective

During the past ten years, only two problems have occurred regarding the usability of the components delivered by Technix. In both cases it concerned adapters and cutter teeth that appeared not to be of the required quality. These quality problems were often attributed to the extreme conditions in which cutters, adapters and cutter teeth had to operate. One interesting detail: the cutter from Technix's very first delivered order to NedWorks in 2008 broke during its use in Portsmouth. Defective cutter teeth led to too much wear of the cutter itself, consequently making the cutter fail after a few weeks. In that instance, AMC and Technix reimbursed all costs related to the adapters and cutter teeth, but attributed the breakage to the manner in which it was being used. NedWorks accepted this at the time. Apart from some minor problems, during 2013 a second, bigger problem occurred. The problem surfaced at a dredging project in Bahrain in the Persian Gulf, where the rocky bed appeared to be very hard. Technix's supplied adapters could not handle the tough rock bed and broke continuously. The problems caused were solved in close consultation: Technix replaced the cutter teeth and adapters that were initially shipped, again at its own expense. In this case, indirect damages or consequential damages were not claimed by NedWorks.

In recent years, NedWorks has hardly dredged in hard soil, so no considerable problems have occurred.

4. Solutions to problem cases in the past

In all cases, the above-mentioned problems have been solved through close consultation between Technix and NedWorks. Examples of arrangements taken by Technix at the time:

- direct consultation with regard to possible replacement of the affected sets of parts
- direct replacement of components that did not comply with the specifications
- consultation on causes and possible preventive measures in order to avoid recurrence in the future

In none of the above-mentioned cases has NedWorks claimed off Technix for direct damages or consequential

damages. This was in line with normal practices. In the dredging or contractors' industry, claims regarding consequential damages for this type of product are exceptional.

5. The project in Rio de Janeiro

Early in 2019, NedWorks landed a major contract for the deepening of Rio de Janeiro's harbour and the connecting entrance channel. In 2013, NedWorks had already widened the channel during a previous assignment.

Rio de Janeiro's harbour is a popular mooring place for cruise ships, but the larger cruise ships could not reach Rio's harbour at the time. NedWorks was contracted to deepen the channel to the ocean and a part of the harbour basin. They started the project in April 2019. The entrance channel had to be deepened to 14 metres over a total length of 1000 metres.

The execution of this project suffered from substantial delay. This was partly caused by the hard rock bed the contractors encountered. Before commencing the work on their initial proposal, NedWorks had conducted a number of soil tests and test drillings in order to determine the hardness of the ground. Notwithstanding, halfway down the entrance channel (July 2019) NedWorks' dredging staff to their surprise stumbled upon hard rock formations. This understandably caused problems with the adapters and the cutter teeth, which wore out at an excessive rate. Another major problem was that during this period, the crew had to struggle with heavy seas. The wind was blowing from the wrong side and ocean water was pushing up forming heavy seas in the channel area. Dredging in such conditions was impossible. The problem deteriorated further when the floating pipeline between the suction dredge and the shore began taking some hard knocks. The shore connection could not withstand the protracted force of the ocean. There was no alternative but to secure all machinery and wait for better weather and for better times, as NedWorks reckoned on the project bearing a severe financial loss due to these problems...

Technix had not been notified of these extreme circumstances beforehand, and Willems was not informed of this situation until, by coincidence, he was reading NedWorks' monthly company newspaper, NeWs Worldwide, including an article about the project in Rio.

6. Material problems with the adapters and cutter teeth

The adapters and cutter teeth used by NedWorks at the start of the activities in Rio originated from batches delivered by KTM in early 2019. Some parts from these batches were used at the harbour entrance and also on another major dredging project in Brazil carried out by NedWorks.

The ‘inferior’ quality only came to light during activities at the entrance channel, during the second stage of the Rio project.

When investigating the causes of the problems during that time, NedWorks started to suspect that something was wrong with the cutter teeth. After a phone call to Rotterdam, on 15 August 2019 the project manager commissioned Profile Testing, a specialist technical consultancy, to test the adapters and teeth. Profile Testing pointed out that the tested parts did not meet the standard technical specifications. However, NedWorks neglected to inform Technix or KTM of these findings.

On 15 October 2019, NedWorks informed Technix of the problems that were being encountered. From that moment on, Technix and KTM did all in their power to limit the damages for NedWorks as much as possible by sending supreme, heavy duty adapters and cutter teeth to the Rio site. This was done so as to not put the excellent business relationship with NedWorks in jeopardy. The problem was, however, that it would take a month for these parts to be delivered to the right spot. The reason for this was that the new cutter teeth needed to be subject to a special heat treatment by a specialist subcontractor in order to harden them for heavy duty work. In addition, both Technix and KTM had insufficient unsold stock at that time. This meant that NedWorks needed to obtain surplus spare parts from other jobsites and transfer them to the Rio project with utmost speed. NedWorks considered it fair that these extra materials and logistics costs should be incurred by its suppliers.

At the end of October 2019, NedWorks held Technix liable for the incurred damages attributed to the poor quality of the delivered products. The claim represents a total sum of €2,162,739.85 (refer to Table 1 and Appendix 3).

Table 1 Damages incurred in Rio project with NedWorks 345 as a result of poor-quality cutter teeth and adapters

€	
Costs as a result of used poor quality teeth and adapters:	248,000.00
Costs as a result of extra reparations for welding broken adapters:	262,620.00
Transport costs incurred by supplying durable teeth and adapters:	345,245.00
Idleness costs NedWorks 345 due to reparation stagnation:	1,128,300.00
Subtotal:	1,984,165.00
9% General costs:	178,574.85
Total:	€2,162,739.85

7. Further developments

In spite of NedWorks’ claim, Technix continued to supply NedWorks. NedWorks’ project manager in Brazil, Jack Nijesen, did personally request Willems to do so. This way, the consequential damages of idleness of the cutter were limited to a minimum. Additionally, in order to decrease its dependency on Technix, NedWorks’ purchase manager started to contact other suppliers for the delivery of adapters and cutter teeth.

Starting on 1 July 2019 NedWorks did not send Technix any further written orders as they used to do beforehand. Despite repeated requests for formal purchase orders from Technix, Technix kept taking orders from NedWorks by telephone and continued supplying. Technix did not receive any additional complaints from NedWorks concerning the quality of the supplied goods or any other delivery problems.

Starting in late September 2019, NedWorks stopped paying for the parts delivered by Technix. A few months later, the total of Technix’s outstanding invoices at NedWorks amounted to about €880,000. These invoices related to shipments that had been accepted by NedWorks project management staff. That is, none of the shipments that were made had been rejected by NedWorks.

When Willems asked why his shipments were no longer being paid, the NedWorks’ procurement manager answered that payment would be suspended until the claim had been paid by Technix.

Hans Willems was peering out of the window. The dark clouds hanging over Rotterdam resembled how he felt. KTM had to be paid soon for the components that they had shipped to the Rio site. If he was not able to solve the issue, larger interests would be at stake. It was likely that KTM would see a good reason to break up the lucrative distribution agreement that Technix had had for so many years. Although Technix’s financial position was healthy, this would change dramatically if they had to pay the claim. However, if no payments were made by NedWorks, there was little doubt that the bank would cut their credit limits and loans ... He did not like the game that this procurement guy at NedWorks was playing with him ... what would he need to do to change the situation for the better?

Assignments

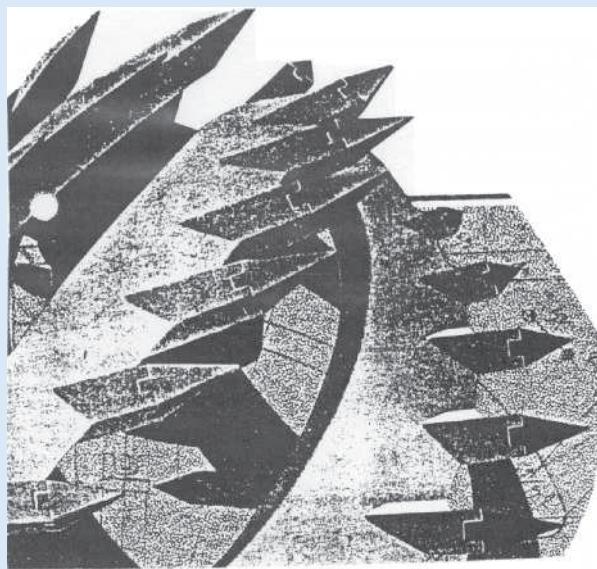
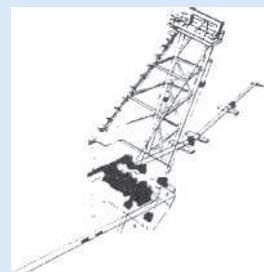
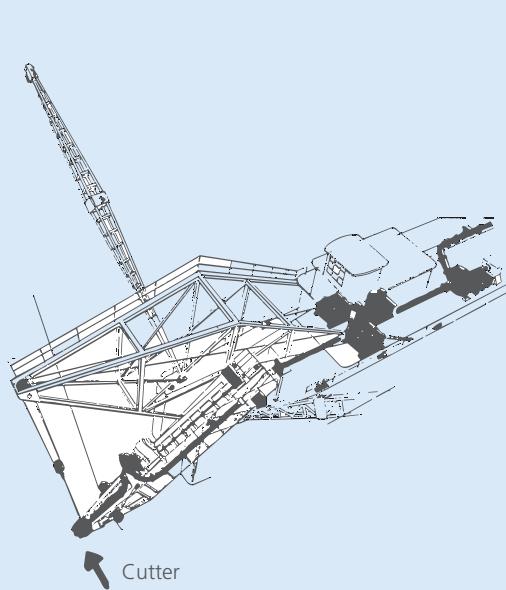
Imagine Technix calls upon you as an external consultant to solve this issue with NedWorks. Based on the above-described situation, picture the time line of events that happened in this case study.

- 1 Would you feel NedWorks’ procurement manager has a strong case? Why? Why not?
- 2 What would you consider to be the most important problems in this case study?

- 3 Which financial solution would you suggest, respecting both the legal and business position of each party?

- 4 How could these problems have been prevented?

APPENDIX 1



Cutter tooth



APPENDIX 2

General conditions of purchase

NedWorks BV

Article 1

The following definitions shall apply:

- Buyer: NedWorks or one of its subsidiary companies.
- Seller: The natural or legal person with whom the contract to supply the goods has been concluded.
- The goods: The object and/or services in the widest sense of the word as are specified in the order.
- The order: The written instruction (in accordance with the present general conditions of purchase) from the buyer for the supply of goods.
- The contract: The order, as such is deemed to have been accepted by the seller in conformity with article 2 hereof.

Article 2 Acceptance of the order

The order shall be deemed to have been accepted by seller at the moment of receipt of the order by seller. In the case where the goods have explicitly been offered ‘without obligation’ by seller the order shall be deemed to have been accepted by seller at the moment of receipt of the order by seller unless seller has within five working days after receipt of the order notified buyer in writing that they do not accept the order.

Article 3 The contract

The contract shall be subject to no conditions other than those mentioned in the order to which the present general conditions of purchase apply. In the event of contradictions between the order and the present general conditions of purchase, the provisions in the order shall take precedence over the present general conditions of purchase.

Article 4 Information forming part of the contract

Drawings, calculations, models and all other documentation and/or information in connection with the contract and made available by buyer or as the case may be specially produced for buyer by seller shall remain the property of buyer or as the case may become the property of buyer as at the moment when they have been produced for buyer’s benefit in conformity with the contract. The foregoing also means that such documents must not be made available by seller to third parties or given to them for perusal. After execution of the contract they must be returned or as the case may be sent to buyer forthwith.

Article 5 Price

The price (prices) mentioned in the order is (are) fixed and irrevocable.

Article 6 Delivery time

- 1 Seller shall deliver the goods on the date laid down in the order. A contractual delivery period shall commence on the date on which the order is dated, except where explicitly agreed otherwise.
- 2 As soon as seller knows or expects that it will not be possible to deliver the goods on time, they shall without delay notify buyer thereof in writing, while mentioning the circumstances which are the cause thereof.

Article 7 Penalty

In the event of exceeding the agreed instalment(s) or date(s) of delivery, seller shall be liable to pay a penalty as is laid down in the order. The aforesaid penalty shall be applicable without prejudice to buyer's right to cancel the contract and/or to claim compensation by virtue of article 12 thereof.

Article 8 Delivery and transfer of ownership

- 1 Each delivery shall be made c.i.f. at the place of destination mentioned in the order.
- 2 The ownership of and risk for the goods shall transfer to buyer at the moment of delivery (at the place of destination). However, the provisions of article 10.3, article 12 and article 16.2 hereof shall remain in full force and effect.

Article 9 Quality

As regards their quantity, specification and quality the goods shall:

- a be in conformity with what is stated in the contract.
- b be of sound materials and good construction.
- c be identical in all respects to the sample(s), model(s) or specification(s) which have been made available or furnished by seller and/or buyer. Specification shall be taken to mean the (technical) description of the goods as is included in the order, to which reference is made in the order or, failing such, that which is customary between the parties or is otherwise general practice.
- d be capable of providing the performance as defined in the order.

Article 10 Inspection and testing

- 1 Subject to the provisions of para.2 and para.3 of the present article and subject to seller's obligation to carry out the necessary inspections themselves, buyer shall have the right to examine and test the goods during processing, manufacture or storage and hence prior to delivery, for which purpose seller shall provide the necessary facilities.
- 2 Regardless of whether buyer has made use of his right as described in the first paragraph of the present article, seller shall remain liable in full for the correct performance of the contract.
- 3 If, upon inspection and/or testing by buyer after delivery, it is found that the goods are wholly or partially not in accordance with the contract or do not in some other way comply with the standards set for such goods, buyer shall send to seller a notice of rejection. As from the day on which such notice is dated, the risk for the rejected goods shall pass to seller.
- 4 Unless explicitly agreed otherwise, seller shall during the construction period cause the required drawings, calculations and specifications to be sent in triplicate to buyer for approval before a start is made on the building, manufacture or ordering of the relevant part. Approval from buyer shall not release seller from their liability for the soundness of the design and execution. Buyer shall return the approved drawings within 14 days after receipt.
- 5 Seller is obliged to carry out or to cause to be carried out all trials that have been agreed or otherwise necessary and the results of these shall be handed over to buyer. Upon being so requested seller is obliged to furnish authenticated certificates of trial.

Article 11 (hidden) effects

Seller is liable for all direct and indirect damage with the exception of consequential losses which buyer suffers as a result of (hidden) effects in the goods supplied and seller shall indemnify buyer against such damage.

Article 12 Non-fulfilment

- 1** If it should be found at any time that seller will not be able or has not been able to fulfil in good time or property all or part of his obligation arising from the contract, as well as in the event of seller's bankruptcy, suspension of payment of their debts, or discontinuation or liquidation of their business, buyer shall have the right to cancel all or part of the contract without further summons and notice of default or legal proceedings being required for such purpose, and to claim compensation of costs, losses and interest. All claims which buyer may have against seller or which they acquire at a later date shall, in the event of cancellation of the present contract, be payable on demand forthwith and in full. The aforesaid right to cancel the contract shall be without prejudice to buyer's right to demand full or partial performance together with compensation for costs, losses and interest.
- 2** If and as soon as buyer has cancelled the contract in full or in part, they shall have the right to return all or part of the goods to seller for the latter's account and risk, on the understanding that buyer shall have the right to retain possession of such goods as security for the repayment of any purchase moneys already paid by buyer and for the reimbursement of any damage suffered or still to be suffered by buyer as a result of the non-fulfilment. Seller hereby declares that they will in such case pledge such goods in such manner to buyer, which pledging buyer hereby declares to accept.
- 3** Solely where the non-fulfilment is or will be a consequence of circumstances beyond seller's control shall seller not be obliged to compensate the costs, losses and interest as referred to above, provided that seller has notified buyer in writing without delay as soon as they know that circumstances have occurred, are occurring or will occur as a result of which seller has not been able to, cannot, or will not be able to fulfil their obligations in accordance with the contract.

Article 13 Guarantee

- 1** Seller guarantees that the goods are of good and sound workmanship and that they will comply, inter alia, with the requirements set forth in article 9 of the present general conditions of purchase. This guarantee shall be valid at least for a period of six (6) months after the putting into operation, within six (6) months after delivery, for a period of twelve (12) months after delivery of the goods, except where materials or goods delivered to seller under the contract have a longer guarantee period or where a longer guarantee period is specified in the order, in which case such longer guarantee period shall be applicable.
- 2** Without prejudice to what is provided elsewhere in the present general conditions of purchase, buyer may, in the case where any defect is observed in what has been delivered within the guarantee period as referred to in article 13.1 hereof, replace or repair the defective goods without delay and at a time and place to be determined by buyer. All costs involved in such replacement or repair shall be for seller's account.

Article 14 Subcontracting

- 1** Without buyer's written permission, seller is not entitled to transfer the contract or any part thereof to third parties or to cause it to be performed by third parties or to contract out the agreed work to third parties, except where such relates to raw materials and/or parts of subordinate importance. The above shall not apply to that part of the delivery whose manufacturer is mentioned by name in the order or in the accompanying specification.
- 2** Seller shall at all times be fully liable, also in the case mentioned in article 14.1 hereof, for the performance of the contract and for damage caused in connection with such performance by them, by their personnel or by third parties.
- 3** Seller shall indemnify buyer against all claims by third parties in respect of or in connection with the contract.

Article 15 Material made available by buyer

- 1 Materials made available by buyer to seller shall remain the full property of buyer. Seller is obliged to use such materials solely for buyer's benefit and in accordance with the contract.
- 2 If within two working days after receipt of the materials supplied by buyer seller has not made a complaint to buyer with regard to such materials, the materials shall be deemed to have been made available to seller without defects in conformity with the contract.

Article 16 Postponement of delivery and storage

- 1 If buyer is unable for whatever reason to accept delivery of the goods on the agreed date, seller shall adequately store the goods or cause them to be stored and shall take measures to prevent a deterioration in their quality and/or any other damage.
- 2 As departure from the provisions relating to the moment of the transfer of ownership, the ownership of the stored goods shall in the case referred to in article 16.1 hereof, be transferred to buyer at the moment when seller has given notice that the goods are ready for delivery to buyer. Seller shall from that moment on retain possession of the goods on buyer's behalf; the goods must have been marked and individually specified by seller as being buyer's property. During storage the goods shall remain for seller's risk. Seller shall take out adequate insurance for such goods. The costs of such insurance shall be reimbursed by buyer.

Article 17 Statutory requirements

Seller guarantees that the design, the composition, the construction and the quality of goods comply in all respects with all relevant requirements laid down in regard thereto in the legislation and/or in other government regulations relating thereto which may be in effect at the time of the delivery. All damage and costs resulting from non-compliance with the aforesaid requirements shall be for seller's account.

Article 18 Patents, etc.

- 1 Buyer shall hold the non-exclusive licence(s) in respect of any patent rights and/or other industrial property rights relating to the goods. Such licence(s) shall comprise:
 - a the authority to use the relevant patented and/or otherwise protected goods in buyer's own business and in that of his subsidiary companies, which shall include repairing and/or causing the repair of such goods;
 - b the authority to supply such goods, whether or not forming part of other goods, to third parties.

The payment for such licence(s) is included in the price.

- 2 Seller shall indemnify buyer in full against all costs, damage and interest which may result from any infringement or alleged infringement of patents, licences, copyrights, registered drawings or design, trademark or trade name, relating to the goods supplied, yet on the understanding that such indemnification shall not apply if and in so far as the alleged infringement relates to a design, drawing or model of buyer which seller is copying for the purpose for which it was made available to them by buyer.
- 3 If any proceedings should be instituted against buyer by virtue of the present article, they shall notify seller thereof forthwith and shall send the relevant information. Seller shall then ensure, by means of an amicable settlement or juridical proceedings, that buyer may have the goods at their free and unrestricted disposal. All costs relating thereto (including any payments made to third parties for the use of such industrial property rights) shall be for the seller's account. Except where they have seller's permission, buyer shall refrain from undertaking any action with regard to the proceedings which have been instituted, unless seller fails to conduct

the negotiations and/or court cases in an energetic manner, in which case buyer shall have the right to conduct or as the case may be to conclude the negotiations and/or court proceedings as they see fit for and on behalf of seller and for the latter's account. Seller shall be fully bound by the outcome of such negotiations and/or legal proceedings which have been conducted and/or concluded by buyer.

Article 19 Payment

If seller has complied with all obligations arising from the contract, seller shall invoice buyer to the agreed price, after which buyer shall make payment within forty (40) days after receipt of the relevant invoice. Buyer is entitled to set off any payments, costs, damages and/or interest which are or will be payable by seller to buyer against any payment(s) due to seller.

Article 20 Applicable law and jurisdiction

Unless explicitly agreed otherwise, the contract shall be subject to the law of the Netherlands. All disputes which may arise from or in connection with the contract shall, unless an appeal is made to a higher court, be adjudicated solely by the competent court of Rotterdam.

APPENDIX 3

Specification damages sustained in Rio project with NedWorks 345 resulting from poor quality cutter teeth and adapters

1 Acquired and used cutter teeth and adapters of inferior quality:

2960 cutter teeth type A-7654 at €61.82	=	€183,000.00
313 adapters type B-4780 at €207.67	=	<u>€ 65,000.00</u>
Total:	=	€248,000.00

2 Costs resulting from extra repairs for welding broken adapters. From week 34 up to and including week 50, 18 extra welders were employed for this.

Weekly costs:

18 welders at €545.00	€ 9800.00
Local tax	€ 1100.00
2 assistants at €320.00	€ 640.00
Fuel	€ 700.00
Electrodes	<u>€ 2350.00</u>
Total: €14,590.00 for 18 weeks =	€262,620.00

3 Transport costs incurred by supplying durable teeth and adapters:

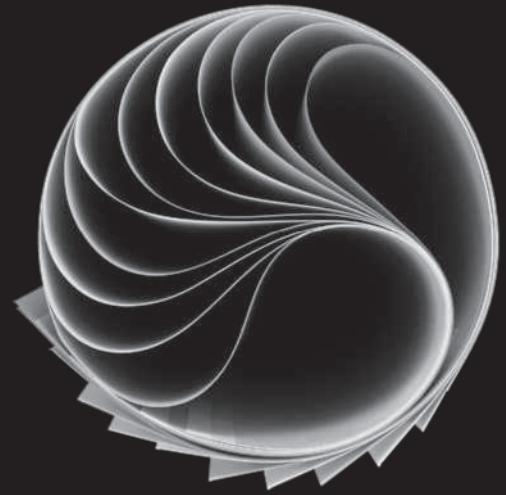
a 3500 teeth ex Bahrain

Air cargo (Pre/AIR/0065 – Sept. 2006)	€216,370.00
Road transport	€ 2,100.00

b 150 adapters ex South NedWorks	
Air cargo (Pre/AIR/008.1 – Sept 2006)	€ 33,000.00
c 40 adapters ex stock air cargo	
(Pre/ AIR/009 – Sept. 2006)	€ 10,225.00
d 2 cutters ex Damman	
Air cargo (Fre/AIR/0045 – Sept. 2006)	€ 20,500.00
Road transport Damman	€ 3,200.00
Road/ocean transport Miami-Rio	€ 9,500.00
e Return of 2 cutters to Damman	
Land/sea transport Rio/Miami (Oct. 2006)	€ 9,500.00
Sea transport Miami/Damman	€ 20,500.00
Road transport Damman/site	€ 3,200.00
f Return of 3500 teeth to Bahrain still to be carried out:	
Sea transport	€ 13,450.00
Road transport	€ 2,250.00
g Return of 150 adapters to South NedWorks	
Still to be carried out	€ 1,450.00
Total:	€345,245.00

4 Idling costs NedWorks 345 resulting directly from delivery of inferior quality cutter teeth and adapters

Weekly costs:	
NedWorks 345	€ 234,250.00
Aiding equipment	€ 34,625.00
Floating pipeline	€ 16,250.00
Land pipeline	€ 8,750.00
Site overheads	€ 28,500.00
	€ 322,375.00
Idling time 3.5 weeks, therefore	
Total: 3.5 weeks × €322,375.00	€1,128,300.00
Subtotal	€1,984,165.00
9% General costs	€ 178,574.85
Total	€2,162,739.85



Interfaces

SECTION III

- 9 Procurement and supply chain management**
- 10 Supplier relationship management**
- 11 Innovation sourcing**
- 12 Procurement with purpose: driving sustainability in supply chain relationships**

9

Procurement and supply chain management

Learning objectives

After studying this chapter you should understand the following:

- The definition of supply chain management and the basic supply chain concepts.
- The most important steps in the materials planning cycle.
- How supply chain activities can be structured within organizations.
- Characteristics of just-in-time scheduling and procurement.
- The most important elements of a procurement information system.

Introduction

In today's society, supply chain management plays a prominent role in meeting the increasing and often conflicting demands of the end-customer in terms of price, quality, speed, flexibility and sustainability. Correctly matching supply and demand presents us with complex supply chain challenges, involving various stakeholders globally, each with their own interests and perceptions. As a result, new digital technologies are being used in supply chain management (e.g. artificial intelligence, blockchain, robotics, drones, smart packaging). In addition to the application of these new technologies, sustainability and circularity are also playing an important role in supply chain management. Products and services must increasingly be realized sustainably and are expected to be delivered to end-users with the least possible negative impact on the social and ecological environment.

This chapter will focus on the functional interface between procurement and supply chain management. It will not address the digital SCM technologies, nor the topics of sustainability and circularity which are covered elsewhere. We will discuss several important concepts and developments in the supply chain domain. The materials planning cycle is described, which will make clear how materials planning processes affect the procurement order cycle and the incoming materials flow. In discussing this subject, the chapter will differentiate between various supply structures that can be encountered in industry. Hence, a distinction will be made between order-based materials processes and forecast-based materials processes. Given its importance there will be ample discussion of the subject of just-in-time manufacturing, lean supply and the

impact of these concepts on procurement and supplier relationships. Finally, this chapter discusses the relevance of effective procurement information systems for supply chain management.

Procurement and supply chain management: definitions and concepts

Supply chain management relates to the way in which materials processes are managed within the company. However, the term also relates to the way in which the external materials processes are managed. Here, we can differentiate between the outgoing materials flow and the incoming materials flow. The former relates to the way in which finished products are distributed by the company to its customers. This activity is commonly denoted as physical distribution. The incoming materials flow covers all activities needed to optimize the goods flows from suppliers to the point of consumption within the company itself. This activity used to be referred to as logistics. In many cases, the scope of supply chain management goes one step further in that it also relates to optimizing the materials flows from the supplier's suppliers to the company. As we will see later, supply chain management has matured due to the fact that advanced information systems have become available which are able to trace and track complex materials flows in great detail.

The case study looks at how one business copes with the impact and significance of integrated procurement and supply chain management.

Case study

Li & Fung

The impact and significance of integrated procurement and supply chain management can be illustrated through Li & Fung, the fast-growing supply chain integrator from Hong Kong.

Li & Fung illustrates how a company over time may go through different stages of development when adopting supply chain management as a key concept in its business policy. Traditionally a buying agent, the company today has developed into one of China's fastest growing and successful supply chain integrators. It did so by systematically expanding into logistics and supply chain activities in its relationships with both customers and suppliers. Initially, simple, low-cost consumer goods were purchased at a commission rate for customers in the United States and Europe. Production orders were allocated by Li & Fung among suppliers from the Chinese mainland on the basis of competitive tenders.

Today, the US\$11.5 billion company has hundreds of offices and distribution centres all around the world, in the Americas, Europe, Africa and Asia. Based upon the specifications of the Western customer (predominantly US and European department stores and DIY chains), Li & Fung designers may develop a range of products under the customer's private label. After approval of the design by the customer, the best manufacturer for the production order is selected within the network of manufacturers in South East Asia. Given their volume, Li & Fung works with a large number of carefully selected manufacturers. The company always makes sure it has about 50 per cent of the turnover of a specific supplier in order to ensure that it is always treated by its suppliers as a preferred customer.

A dedicated quality inspector will be on site to supervise the production order, to ensure that the products meet the agreed specifications and to monitor social and environmental requirements. The procurement offices of Li & Fung supply all necessary raw and other materials (textiles, yarn, buttons, zips, packaging, etc.) to the manufacturer. Due to its scale, Li & Fung can stipulate far better conditions and qualities for its raw materials and components than can individual manufacturers. After production, Li & Fung takes care of the shipment and transportation. The advantage lies in the consolidation of deliveries: different shipments for different customers may be consolidated into one container so that transport costs for the customer are as low as possible. Here, too, the company profits from its expertise and scale.

Li & Fung makes no secret of its network. If required, the customer can visit the production facilities. Li & Fung's integrated way of working allows it to work at 40 per cent lower costs, compared with when department stores took care of their business themselves. Li & Fung's success is reflected in its financial figures: since the late 2000s the company has produced double digit growth figures annually.

This example demonstrates the key factors to success for effective and successful supply chain management: a strong position in the customer–supplier network, supported by advanced IT and creative entrepreneurship. The key element is not the price that Li & Fung offers its customers, but rather the integrated value proposition for the design, procurement and logistics for a complete line of products. It is an example of an enterprise that is capable of successfully linking customer networks directly to its supplier networks.

Li & Fung is an example of a new generation of supply chain integrators that fulfil the role of supply chain director due to their superior logistics and financial information systems. However, the market is changing. Li & Fung's core business is founded on a once rare asset that is increasingly becoming a commodity, namely industry knowledge. Thanks to the globalizing world – the presence of the internet and Western firms in China – this type of knowledge is now much more accessible for competitors and customers. In addition, the quality of Chinese manufacturers has increased across the board, decreasing the need for a third party to locate quality factories. These trends could result in the customers of Li & Fung nowadays being able to more easily direct source from China without the need for an intermediary. Therefore, it is important for this type of company to continuously improve both efficiency and customer value.¹

Logistics

management Logistics management includes the management of materials planning, the supply of raw materials and other purchased goods, internal transportation, storage and physical distribution. It may also include, in some companies, reverse logistics, i.e. recycling packaging materials and surplus materials.

Supply chain thinking started several decades ago with **logistics management**. The term 'logistics' originally stems from military organization and was already in use in the days of King Louis XIV of France. Even then it was clear that the effectiveness of any military organization or operation did not depend solely on the weapons, the power and the fighting spirit of the soldiers. It was also affected by the possibilities of transportation and the efficient supply of ammunition and food. The rationalized consideration of the transportation and supply of materials, food and ammunition was called logistics. The French military successes of that time were mainly due to the importance that was given to logistics.

Logistics and flexibility go hand in hand. Flexibility is getting a lot of attention in many companies today where functional thinking still dominates. In a functional organization, individual departments such as sales, production, product development, administration, procurement and personnel are essentially managed as separate activities. In most cases the managers responsible for each of these activity areas reports directly to the executive board. Each department has very specific tasks that are to be realized through limited resources, which are agreed in annual departmental budgets.

¹For more information visit: www.lifung.com

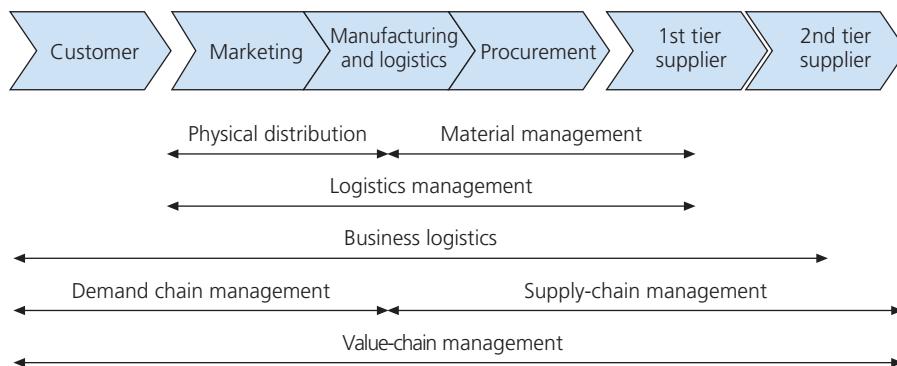
Realization of these budgetary targets is an important factor in the assessment of departmental managers. They therefore often strive to realize their own budget targets, even at the expense of other departments. This practice can easily lead to departments operating fairly autonomously so that co-ordination of the whole is left to the interplay of forces between the departments themselves.

Supply chain management aims to counterbalance the shortcomings of the functional organization, by focusing on those processes through which customers can be better served. Supply chain management favours a process structure rather than a functional structure. All processes are aligned in order to meet specific customer needs and focused on creating maximum customer satisfaction. Superior customer service, efficient customer complaint handling, customer order-based planning and customer-driven product development and innovation are important cornerstones of supply chain management.

Logistics management is related to all materials flows, from the inflows of purchased materials, through the manufacturing process and the outflows to the customer. The starting point for any logistics process is the short-term sales plan and the related product plan. The logistics function therefore includes materials planning, the supply of raw materials and other purchased goods, internal transportation, storage and physical distribution. It may also include in some companies reverse logistics, e.g. recycling packaging materials and surplus materials.

Creating superior customer service and flexibility demand close co-operation between all materials-related functions. Supply chain management therefore applies to a broad area of activities. Figure 9.1 illustrates the relationship between these and other supply chain related concepts.

Figure 9.1 The business value chain and related items



The following features are relevant to an understanding of the importance of coordinating the company's internal and external supply chain processes:

- Design, engineering and product development. These activities can strongly affect supply chain processes, as they determine the structure of the (future) manufactured products. The tolerances and specifications of products and the components they are made up of can be defined in such detail that they can only be obtained from a few suppliers.

One question in the context of the design activities is to what extent businesses strive for standardization of components. If new components are specified for each new end-product being developed, then this irrevocably leads to a very extensive article assortment. This will have considerable consequences for logistics complexity and therefore the degree of sophistication of the materials, planning and control systems.

- The production department. This department also determines the effectiveness and efficiency of the logistics function to a large extent. The production department will usually aim for a high-capacity utilization of its assets. Disruptions in the production process as a result of the rejection of incoming shipments due to quality problems and shortages of materials due to failing supplier deliveries are undesirable. A production manager will take preventative measures to avoid such disruptions, for example by building up buffer stock, by ordering materials ahead of time and by ordering components from many suppliers. These measures may reduce the risk of production stops. However, these measures are examples of sub-optimization – although the measure is a solution for one department, it will lead to higher efforts and cost for other parts of the organization (e.g. surplus inventory cost).
- Logistics management starts with the customer. If the sales organization, for the sake of landing an order, promises a delivery time earlier than the internal production lead-times, planning problems are likely to occur! This frequently results in ‘rush work’ in production planning, production and procurement (e.g. ‘rush orders’), resulting in overtime, express delivery and pressure on suppliers to get the required materials earlier, often at considerable extra cost.

Some authors describe supply chain management as the management (i.e. the planning, execution and control) of all factors and interfaces that affect the materials flow, the financial flows related to it and the related information flows in such a way that the highest delivery reliability, the best order fulfilment and the shortest delivery time are realized. Based upon this description we can differentiate between logistics management and supply chain management. This latter term is interesting, because the relationship between the company and its suppliers as well as its customers is included in this concept.

Suppliers can make important contributions to the improvement of customer service levels. This was illustrated when a distributor of technical components decided to analyze its low customer service levels. The supply organization was repeatedly unable to meet promised delivery dates in its relationship with some major customers. The analysis revealed that 75 per cent of the reasons were related to the bad deliveries of their suppliers. The analysis showed that whereas the company had to meet stringent delivery schedules as imposed by its customers and was evaluated on its customer service levels, its suppliers were not monitored and evaluated at all on their service delivery. Based upon this finding the company started to put the same performance measures in place as those that were used by their customers. This immediately led to an improvement in the suppliers’ delivery performance and, next, to an improvement in the company’s customer service levels.

External structure

External structure consists of a number of links (companies, institutions) that are connected via markets.

Industrial branch The horizontal relationship of organizations that experience each other as effective competitors (for example, the leather and footwear industry and the electronics industry).

Memo 9.1

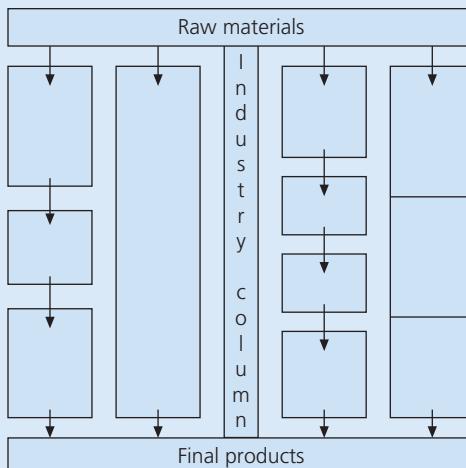
Supply chain structures: diverging and converging supply chains

The patterns of relationships between supplier and buyer are primarily determined by the underlying pattern of the goods and service deliveries, the **external structure** (Figure 9.2). The external structure consists of a number of links (companies, institutions) that are connected via markets. Within the external structure, **industrial branches** and supply chains can be distinguished.

An industrial branch is the horizontal relationship of organizations that experience each other as effective competitors (for example, the leather and footwear industry, the electronics industry and the car industry). A supply chain is a series of companies (links) in which the consecutive stages of production of an economic product take place, i.e.



Figure 9.2 The external structure on a macro level



from primary producer to final consumer. Depending on the number of stages, one can speak of a short or a long supply chain. Depending on the location of the link in the supply chain, the materials flow between successive links can take the following forms (refer to Figure 9.3):

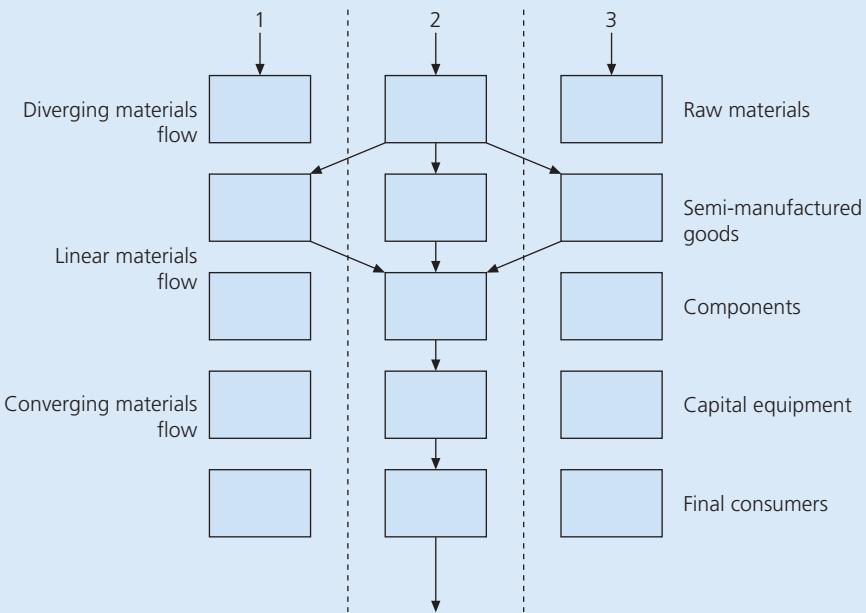
- Diverging materials flow. The finished product of one link is the main or sole input for the next production stage of various other industry columns. This applies to industries which process raw materials.
- Linear materials flow. The finished product of one link is the main or sole input for the subsequent link.
- Converging materials flow. Various finished products of links of various supply chains are

the input for the next link. This situation is found in companies with assembly-oriented production.

Diverging materials flows are usually found at the beginning of a supply chain. Converging materials flows are found at the end of a supply chain. External factors are those which determine the degree of availability of a certain product and which cannot be influenced by individual companies. Examples are the number of customers or buyers in a market, the number of suppliers, the market structure (transparency, pricing method), the stock situation of the product in question and the speed of technological innovation.

External factors are relevant because they determine the market structure. Market structure

Figure 9.3 Supply chain structure



is defined as the total set of conditions in which a company sells its products, with special attention to the number of parties in the market and the nature of the product being traded. Central to this definition are, therefore, the number of suppliers, number of buyers and degree of product differentiation. The market is the total of supply and demand. Sometimes this refers to a physical market, where buyers and sellers actually meet, but in general abstract markets are dealt with. Economic theory uses a number of constructs to explain the relationship between demand, supply and market price. It distinguishes between various market structures such as:

- **Pure competition.** This is characterized by a large number of buyers and sellers. Neither the individual supplier nor the individual buyer can influence the price of the product. Price is the result of the balance between supply and demand.
- **Monopolistic competition.** This market structure is characterized by a large number of buyers versus a large number of suppliers. Through product differentiation each supplier wants to make its product offering stand out vis-à-vis its competitors. This provides the supplier with some room to manipulate prices, within a given bandwidth.

- **Oligopoly.** An oligopoly is a market type characterized by a large number of buyers versus a limited number of suppliers and a limited product differentiation. Usually, there are important entry barriers for new competitors. Depending on the situation, the market price can be set by a market- or price-leader, or arranged through some form of price arrangements ([cartels](#)).

- **Monopoly.** A monopoly is characterized by the presence of only one supplier of the product in question. Substitutes are (virtually) absent. This enables the monopolist to pursue its own pricing policy. Monopolies emerge when the entire supply of raw materials or a particular manufacturing process or technology is owned by just one producer or manufacturer, excluding others by means of contracts or patents (e.g. oil concessions, diamonds, IT solutions).

A basic understanding of the supply chain and market structures helps buyers to understand what it takes to support their company operations. It also helps to understand their negotiation position vis-à-vis their suppliers. Finally, this helps businesses to understand the differences between procurement organizations and the way these operate.

Apart from suppliers, customers may also have considerable influence on the effectiveness of a company's supply chain. If customers are willing to give up or adjust certain requirements (for instance with regard to specifications, quality, delivery time or packaging), considerable savings due to the simplification of supply processes can result. When customers are willing to share important planning information with their suppliers, this will enable them to anticipate future customer orders much more effectively. Since both customers and suppliers can exert considerable influence on supply processes, we favour an expanded view on business logistics. Therefore, we use the term supply chain management, rather than (business) logistics, throughout this book.

Over the past decades more and more attention has been given to the concept of supply chain management. Some authors look at the supply chain as the connected series of activities which is concerned with planning, coordinating and controlling materials, parts and finished goods from the company's suppliers to its customers. Supply chains may have different structures: they may be diverging, linear or converging (refer to Memo 9.1).

Supply chain management extends the concept of business logistics to other tiers in the supply chain. Supply chain management actually can be considered as a holistic approach to manage the total flow of a distribution channel from suppliers to the final consumer. Successful supply chain management relies on creating collaborative relationships with trading partners along the supply chain. A supply chain integrator (sometimes referred to as 'supply chain captain') needs to be present to effectively co-ordinate activities between supply chain partners. In retail this role is provided by large retailers, such as Walmart (US), Tesco (UK), Carrefour (France) or Ahold (Netherlands). In other sectors this role may be taken up by companies such as DHL, UPS or FedEx, who orchestrate materials flows between their clients and their respective customers and suppliers. Implementing supply chain management requires suppliers to meet the demands of the company's supply chain processes. Therefore, a certain level of procurement maturity is required to fully enable supply chain management.

This description shows that supply chain management can be considered as a logical extension of earlier logistics concepts. It says that in order to be able to manage cost throughout the supply chain, effective and co-operative supplier relationships are required. Hence, supply management (including purchase-to-pay (P2P) and incoming logistics) and supplier relationship management (SRM) can be seen as integrated parts of the broader supply chain management concept. Now that we have provided some definitions, let's have a closer look at how materials processes in organizations can be structured and managed.

Pure competition

Characteristic of this market structure is that neither the supplier nor the buyer can influence the price of the product.

Monopolistic competition

This market structure is similar to many actual markets and is characterized by a high degree of product differentiation.

Oligopoly An oligopoly is a market type characterized by a limited number of suppliers and a limited product differentiation.

Cartel Price can be set by a market- or price-leader, or arranged through some form of price arrangements.

Monopoly

Characterized by the presence of only one supplier of the product in question.

Materials requirements planning

Materials requirements planning (MRP) starts in the sales department with the drawing up of a sales plan. This plan provides an estimate of the volume that management thinks can be sold in the following months or the year to come. Data is presented both at product-group level and at the product-article level. Comparison of the sales plan with the available finished product stock yields the volumes to be produced. This information is the input for the manufacturing planning and control system (refer to Figure 9.4) in which the following elements can be distinguished:

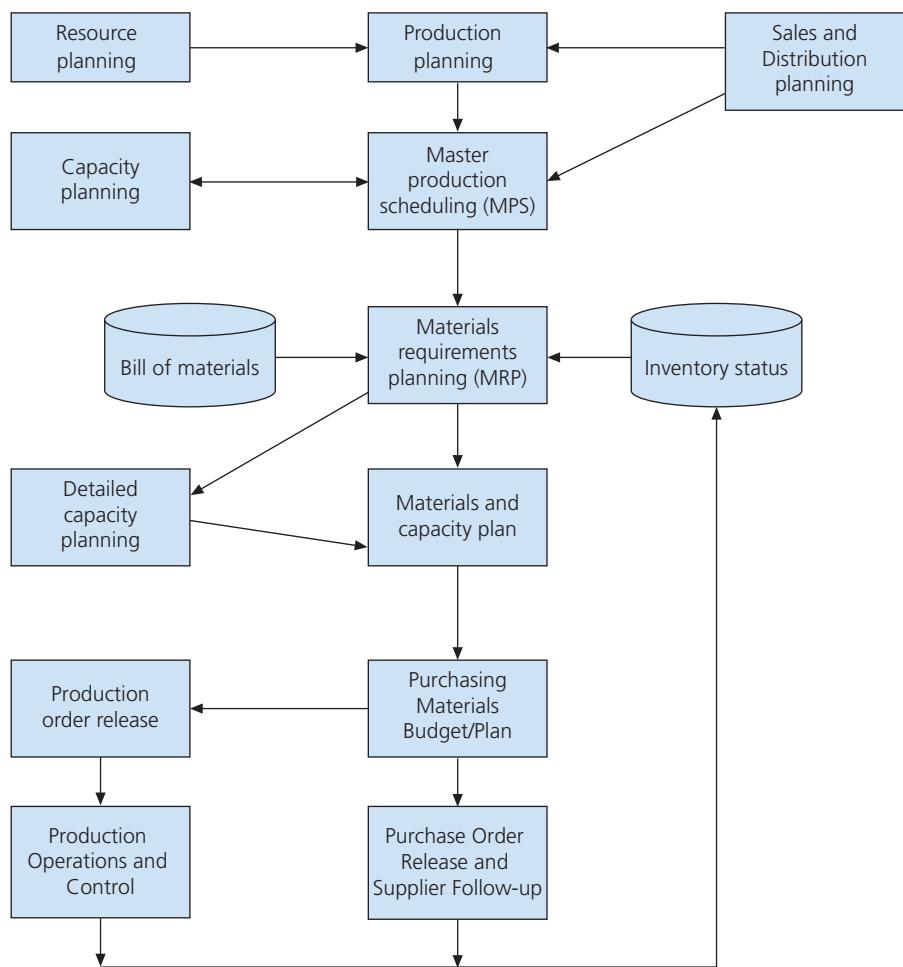
- Master planning. In the master plan the manufacturing plans at the level of the product families (product groups) are established in consultation with the departments of

sales, product development, manufacturing, finance and administration, and logistics. In the master plan the customer orders, the sales plan, the planned stocks of finished products, and the production and procurement plans are linked together.

- Manufacturing resources planning (MRP-II). The resources needed to realize the master plan are recorded in the MRP-II, from which the required composition of manufacturing resources is derived. In the process it may become clear that particular production series are not feasible because of limited production capacity. This will require an adjustment to the master plan or the manufacturing capacity. In the latter case an investment plan needs to be prepared to add additional production capacity.

Figure 9.4 Manufacturing planning and control system

Adapted from Vollman et al. (1984, p. 25).



- Master production scheduling (MPS). The MPS translates the master plan into specific materials requirements. The MPS is also the basis for computing the quantities of materials, semi-manufactured products and components which must be manufactured. In this way, the MPS provides the input for calculating the net materials requirements.
- General capacity testing. The MPS must also be tested for capacity limitations. This should be done for all potential bottleneck capacities. Such a check may reveal that the internal capacity is insufficient to produce certain components. If that is the

case, the possibilities of contracting out the production of these components, or buying them, must be investigated.

- Materials requirements planning (MRP-I). The MRP ‘explodes’ the requirements of the MPS level, step-by-step, in accordance with the bill of materials (BOM). It determines the materials requirements at the different levels of the product structure and, finally, at the materials (item) level. If at some level identical requirements emerge from different MPS items, then these are grouped and added up per period. These needs are called the gross requirements and are converted into net requirements per period. This is accomplished by deducting the stock in hand from the gross requirements and subsequently deducting the manufacturing orders and procurement order volumes that have already been placed at suppliers. The net requirements are then plotted, taking into account the ordering procedures that have been developed. In this way, the materials requisitions are built up. These requisitions must be delivered on time, to be ordered from the supplier or to be manufactured by the company’s own manufacturing departments.
- Capacity requirements planning. Capacity requirements planning is conceptually comparable with MRP. The current and planned manufacturing orders from the MRP provide the input for the detailed production line planning. The required capacity is compared with the available capacity per production line (machine). The capacity requirements planning spots at an early stage where and when utilization problems will occur, so that preventative/alternative measures may be taken. If it is impossible to solve these problems, then the MPS must be adjusted.
- Order release. Order releases change the status of the manufacturing orders and purchase orders from ‘planned’ to ‘released’. The decision to release is based on the availability of the required materials and capacity. If a manufacturing order is released by a planner, the information system automatically allocates the required materials to this order. This prevents these materials being allocated to another process or manufacturing order. The system generates documentation for issuing the materials and components required to feed the manufacturing orders; in case stock is insufficient it generates materials requisitions for procurement (i.e. purchasing requisitions).
- Priority management. The priorities are derived directly from the master production schedule. Each unit receives a priority sheet which lists all manufacturing orders for that production line or machine centre. Orders with the highest priority should be given preference; regular ‘overdue’ reports indicate which manufacturing orders and purchasing requisitions will not be executed on time.
- Capacity management. The issue of managing lead-times, work-in-progress (WIP) and capacity is a complex one. To prevent under-utilization, manufacturing always tends to take on more work. However, when the expected workload (the input) exceeds the available capacity, long waiting periods ensue. The various manufacturing orders will be waiting longer, the lead-times increase, the amounts of WIP grow and delivery reliability decreases. This is why it is of the utmost importance that the waiting times per processing group be controlled. Input/output reports have an important function here, to compare the realized output for a production unit against its planned output.

The literature makes a distinction between MRP-I and MRP-II. MRP-I stands for materials requirements planning; this type of management system aims at releasing manufacturing orders and purchasing requisitions and at managing them. MRP-II stands for manufacturing resources planning and entails more than MRP-I. It is an integral system that controls relevant materials flows and production capacity, while also taking into account the relationship between these materials flows and the required capacity.

Basic logistics structures

The systems described are characterized by the fact that they are forecast-based. The more accurate the sales forecasts, the more accurately production planning and materials requirements can be determined. It will be clear that in practice the unpredictability of sales orders is the stumbling block in the application of these systems. Furthermore, industrial manufacturing and logistics' practice often shows much more variation than we have outlined here. Many companies have order-based production (as in the shipbuilding industry) instead of a forecast-based production (as is the practice in the petrochemical and processing industry). In customer-order-controlled manufacturing companies, production and materials planning are derived directly from the customer order. Every order is customer specific and therefore requires individual handling. Each sales order in fact represents a unique project. The customer's requirements tend to become known only at the last moment, which results in high time pressure. In such a situation, the project approach to production is much more effective than an approach based on the MRP method. In other words, the application of MRP systems is limited to (small and large) series and process production.

In practice, there are numerous hybrids between those companies managed solely on the basis of customer orders and those based on forecast alone. Most companies, unfortunately, have to deal with both types of manufacturing and goods flows. The **customer order decoupling point (CODP)** (or order penetration point) concept is of major importance when organizing efficient manufacturing and logistics. The CODP indicates how deeply the customer order penetrates the firm's materials flow.² It defines from what moment a production order becomes customer specific. Downstream from this point all activities are customer-order-driven; upstream of this point activities are forecast-based. The CODP separates the activities based on order information from the forecast-based activities. This is important because these two types of activity require totally different planning techniques. In general, the following situations can be distinguished (refer to Figure 9.5):

- **Make and send to stock (MSS).** Products are manufactured and sent to various distribution points which are dispersed and located close to the customer. Manufacturing is based upon forecasts and on the expected stock turnover at the points of distribution. Examples are the manufacture of sweets, foods, beverages, oil and chemical products.
- **Make to stock (central stock) (MTS).** Finished products are kept in stock at the end of the production process and from there are shipped directly to many geographically dispersed customers, as in the manufacture of many consumer electronics products (such as dishwashers and refrigerators).

²This discussion was originally based upon Hoekstra and Romme (1992), who did pioneering research in supply chains and CODPs.

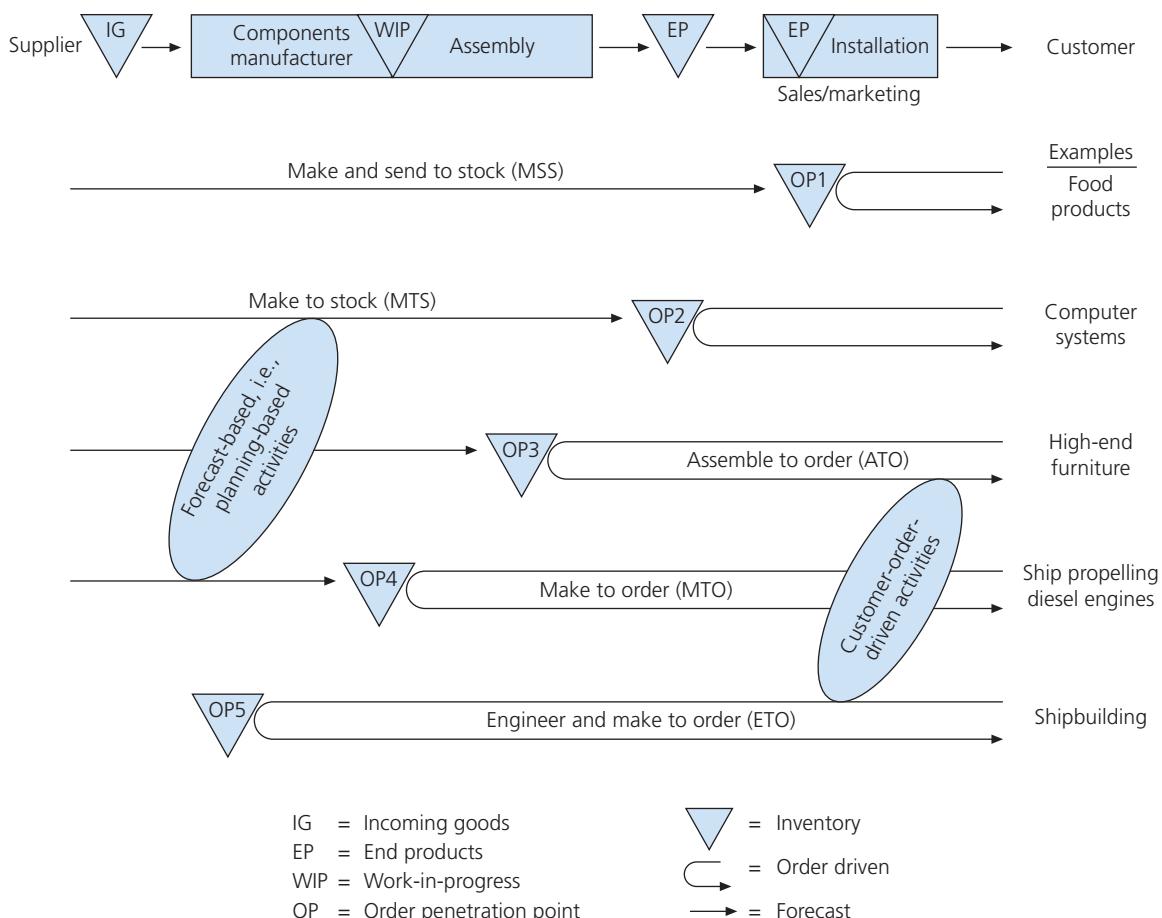
Customer order decoupling point (CODP) The point in the supply chain where a production order becomes customer specific. Downstream of this point activities are planned based upon customer order and further downstream activities are planned based upon forecast.

Make and send to stock (MSS) Products are manufactured and distributed to various distribution points which are dispersed and located close to the customer. Manufacturing is based upon forecasts and on the expected stock turnover at the points of distribution.

Make to stock (central stock) (MTS) Finished products are kept in stock at the end of the production process and from there are shipped directly to many geographically dispersed customers, as in the manufacture of many consumer electronics products (such as dishwashers and refrigerators).

- **Assembly to order (ATO).** Only systems elements or subassemblies are in stock at the manufacturing centre and final assembly takes place based on a specific customer order. In other words, manufacture of components takes place based on forecasts and final assembly takes place based on customer orders. Examples are the manufacture of cars, computers and materials handling equipment.
- **Make to order (MTO).** Only raw materials and components are kept in stock. Every customer order is a specific project. Examples are the manufacture of production equipment and technical installations.
- **Engineer and make to order (ETO).** In this situation, there is no stock at all. The purchase and order of materials takes place on the basis of the specific customer order and the entire project is carried out for this one specific customer. As a result this type of production structure results in long lead-times. Examples are oil platforms and luxury yachts.

Figure 9.5 Customer order decoupling point (CODP): the deciding factor for an effective logistics structure
Source: Hoekstra and Romme (1992).



The question of where the order decoupling point should be located in the company's primary processes is a major issue when designing the manufacturing and logistics organization. The answer to this question also determines where in the process inventories should be located and in what quantities. The role and position of the procurement function will differ in each of the situations described earlier.

Assembly to order (ATO) Only systems elements or subassemblies are in stock at the manufacturing centre and final assembly takes place based on a specific customer order. In other words, manufacture of components takes place based on forecasts and final assembly takes place based on customer orders. Examples are the manufacture of cars, computers and materials handling equipment.

Make to order (MTO) Only raw materials and components are kept in stock. Every customer order is a specific project. Examples are the manufacture of cans and basic construction materials.

Engineer and make to order (ETO) In this situation, there is no stock at all. The purchase and order of materials takes place on the basis of the specific customer order and the entire project is carried out for this one specific customer. As a result, this type of production structure results in long lead-times. Examples are oil platforms and luxury yachts.

Just-in-time management (JIT) All materials and products become available at the very moment when they are needed in the production process, not sooner and not later, but exactly on time and in exactly the right quantity.

In the first situation, the planning of the quantities to be purchased per period is fairly predictable. Based on expected volumes, annual (bulk) agreements can be negotiated with suppliers or long-term price agreements can be made. Based on the production planning, delivery schedules can be drawn up and periodically communicated to the supplier.

In the last situation procurement strongly resembles project procurement. Every project is new – new suppliers have to be found for every production order, the products that are to be manufactured must be discussed in detail with suppliers, and intensive consultation between the design and engineering department is necessary. On-time delivery and quality are more important than price. Procurement must be able to respond to changes in design and project planning quickly.

Just-in-time management

CHARACTERISTICS OF JUST-IN-TIME MANAGEMENT

The principle of **just-in-time management (JIT)** means that all materials and products become available at the very moment when they are needed in the production process, not sooner and not later, but exactly on time and in exactly the right quantity. The major objective underlying this approach is to continuously tackle and solve manufacturing bottlenecks within, and interface problems between, consecutive steps in the supply chain processes. Incoming inspection, buffer stock and extensive quality control procedures on incoming materials are primarily considered as ‘waste’. The basic idea is to strive continuously to reduce and eliminate these often ‘hidden’ costs in the factory.

JIT implies that nothing is produced if there is no demand. The production process is ‘pulled’ by customer orders. The ‘customer’ is in fact the organizational entity which is ‘next-in-line’. This concept, therefore, may relate to other departments within the company itself. However, it may also relate to external customers, outside the organization. When no customer orders have been received, manufacturing activities will come to an end and the spare time is used to do minor repairs/maintenance, housekeeping or prepare for materials planning. The spare time may also be used to discuss how to improve on the work currently being conducted within the organizational entity (‘small group activities’). No production, therefore, does not imply that time is used unproductively.

As they contract out a considerable amount of work, many large Japanese producers work closely with a limited number of suppliers (which are sometimes organized in supplier networks or supplier associations). The bulk of the materials requirements are sourced from these suppliers. It is not uncommon that one manufacturer is responsible for more than 50 per cent of a supplier’s turnover. At the same time this same supplier may deliver 80 per cent of the manufacturer’s specific materials requirements. This leads, in contrast to many European manufacturers, to a large interdependence between manufacturers and suppliers. As a result, Japanese manufacturers are able to benefit much more from the supplier’s expertise and capabilities. Another aspect is that Japanese manufacturers in general focus on assembly only. All component manufacturing is outsourced to specialized suppliers. Since the producer frequently represents a large share of the supplier’s turnover, a maximum effort by the supplier is ensured. Obviously, there is some risk involved for suppliers when engaging in this type of relationship: if there is no market demand for the customer’s product, there will be less work for the supplier. In this way, part of the business’s economic risk is transferred to the suppliers. However, if the producer can guarantee a certain production volume for a number of years, it becomes

appealing for the supplier to invest in new technology. Japanese supplier relations, generally, are characterized by their long-term orientation (three- to five-year contracts).

ORDER QUANTITIES AND BATCH SIZES

Continuity in production demands constant availability of the required materials. Manufacturing managers continuously need to decide when and how much should be ordered from their suppliers. There are several models that can be used for optimizing the incoming materials flow. One very well-known model is **Camp's formula**. The variables used in this inventory model are:

- S fixed usage per period
- Q order quantity
- C_o costs per order
- C_i inventory carrying costs for one unit during one time unit

Camp's formula

Mathematical formula based upon inventory costs and ordering costs to decide on optimal economic order quantity (EOQ).

The economic order quantity (EOQ) is where the sum of inventory costs and ordering costs per unit is lowest. Ordering large quantities from suppliers has the advantage that the ordering costs (fixed costs) can be spread out over a larger number of products. Hence, large order quantities will lead to a lower order cost per unit. The disadvantage of ordering large quantities, however, is that larger quantities of the product must be kept in stock for a longer period of time, which naturally implies higher inventory carrying costs per product.

Starting with the order quantity Q and a usage rate per period S means that in a given period S/Q orders are required. The order costs for that specific period therefore will amount to $S/Q \times C_o$.

The average inventory level, measured over one period, is $1/2Q$ and the total inventory costs for the considered period are $1/2Q \times C_i$. The total ordering and inventory costs will be:

$$\frac{S}{Q} \times C_o + \frac{1}{2} Q \times C_i$$

The EOQ can now be calculated (Camp's formula) as:

$$Q_o = \sqrt{\frac{2S \times C_o}{C_i}}$$

Although this formula has received large interest from practitioners, it is only of significance under the following conditions:

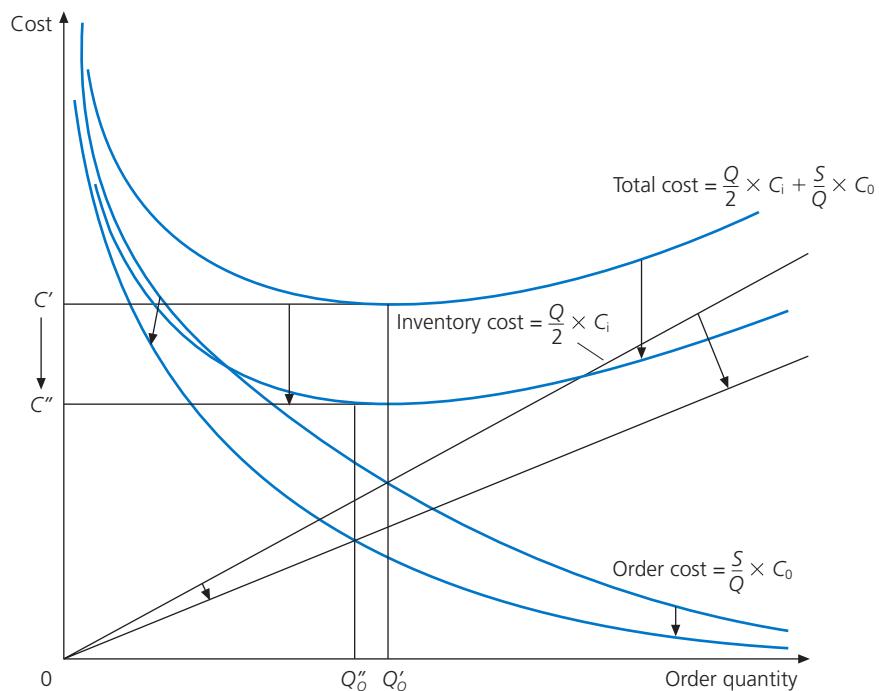
- The consumption of the component at hand is fairly stable.
- The consumption of the component is evenly spread over the course of time.
- The delivery time of the product is fixed and not due to fluctuation.
- The ordering costs per order are fixed.
- The inventory carrying costs do not depend on the ordered quantity.

The JIT approach basically challenges each of these assumptions. For example, order-related costs are analyzed in terms of costs related to:

- negotiations with the supplier
- administrative processing
- follow-up and expediting of orders
- incoming and quality inspections.

Suppliers are now classified into categories depending on the degree to which they represent work for the buyer. Suppliers that comply with the stringent JIT conditions require no more investigation. By systematically considering how savings can be accomplished for each separate cost item, the buyer succeeds in reducing the optimal order quantity. A graphic representation is provided in Figure 9.6.

Figure 9.6 Towards a reduction of the economic order quantity



The reasoning used for determining the EOQ can also be applied to determining the (optimal) batch size in production. This issue arises when one production line is used to produce different products or product varieties. Changing production from one product to another means that the production line needs to be reset, a process which usually costs time and money. In general, four steps in the process of setting up a production line may be identified:

- Preparation. This includes gathering tools, moulds, spare parts, work instructions, etc. and transporting them to the machine or production line concerned.
- Conversion. This is the dismantling and rebuilding of the machine or production line, mounting the appropriate tools and moulds and, if necessary, cleaning.
- Setting up. This refers to setting the machine in such a way that the desired quality and speed are achieved; a trial run may be necessary.
- Finishing. Finishing may consist of removing, cleaning and storing the used tools and spares, and removing the finished product.

While the machines are being reset, nothing is produced. Many companies therefore regard setting up production lines as a necessary evil. In practice, the easy solution is frequently chosen: the production line is used to make the same product for a longer period of time, so that less frequent resetting is required. In other words, the batch size is

enlarged to benefit from economies-of-scale achieved as the result of a lower set-up cost per unit produced. Moreover, this practice leads to much better capacity utilization in production (yield). Clearly, one disadvantage of this way of working is that the size of the stocks related to semi-manufactured products and finished products and the associated inventory carrying costs increase. The decision about the optimization of batch sizes must therefore be based on balancing set-up costs against inventory costs. The optimal batch size is achieved when the sum of the inventory costs of WIP and set-up costs per unit produced is lowest.

Thinking based upon economies of scale and production yields, which can still be observed in many manufacturing organizations, limits production flexibility and fast response to customer requirements. This poses a problem for manufacturers when customers demand short lead-times, which happens in many markets nowadays.

By systematically striving for reducing set-up times, the optimal batch size can be reduced considerably as well. Often, when calculating the optimal batch size, the set-up costs of the production machinery, among other things, are considered fixed. These costs can be very high. Japanese production thinking has continuously focused on the question of whether these fixed costs can be made variable. Japanese producers have constantly looked for ways to minimize their set-up costs and set-up times. Much has been achieved by means of organizational measures, and new machines have been redesigned that are easier to handle and set up. As a result, optimal batch sizes have been reduced considerably, enabling Japanese producers to benefit from low costs per unit together with high product mix flexibility in their production.

QUALITY AND ZERO DEFECTS

Another characteristic of the JIT principle is related to quality awareness. Smaller batch sizes make it necessary to detect quality defects at an early stage. In most Japanese companies every employee is responsible for the quality of their work. If a production employee notices that a particular part does not meet the specifications, they immediately notify the colleague in the previous link of the production process. It may be that the conveyor belt has to be stopped. The advantage of this procedure is the fast response time – corrective action is taken immediately following a complaint. This situation is in sharp contrast with the practice of some European companies, where defective material is first put aside, then handed over to the quality department, which in turn contacts the production department in question to solve the problem.

It is clear that for the JIT approach to be successful, it must be supported by all functions within the company. Top management should actively support supervisors and shop floor workers in providing the resources necessary to improve manufacturing operations. Adopting a JIT approach will take a considerable time; it took Toyota 15 years to implement its famous **kanban** philosophy. There is considerable attention to quality in Japan because there is almost no slack in the production process. This means that any defective product may threaten the continuity of the entire production process.

Traditional quality control procedures were often based on inspection after a series of parts had been manufactured. The rejected parts were dismantled and, when appropriate, repaired. JIT management requires that everything goes right the first time (the ‘zero defects’ principle). It will be clear that JIT production and scheduling cannot be successfully implemented without a ‘zero defects’ philosophy.

Kanban Form of JIT scheduling based upon fixed volume lot delivery. When a lot is used, the kanban (card) will be sent to the supplier as a signal to replenish that lot.

Having discussed the major characteristics of JIT management, the question of what its introduction means for the procurement department and for the performance of suppliers is now addressed.

JIT AND THE PROCUREMENT FUNCTION

Applied to procurement, JIT is a philosophy that aims to make exactly the required materials and products available at exactly the time they are needed, so that value is added only to the product which is to be manufactured, and indirect costs are avoided.

What does the introduction of JIT mean for the procurement function? JIT has a major impact on both the quality and the quantity of the materials to be purchased. Table 9.1 lists the main differences between the traditional procurement approach and the JIT approach.

Table 9.1 Differences between the traditional approach and the JIT approach in procurement

Procurement activity	Traditional approach	JIT approach
Supplier selection	Minimum of two suppliers; price is central	Often one local supplier; total cost is central
Placing the order	Annual contract; deliveries called as needed	Multi-year contract; deliveries called as needed
Change of orders	Delivery time and specifications often changed at the last moment	Delivery time and specifications fixed; quantities are adjusted within predetermined margins if necessary
Follow-up of orders	Many phone calls and emails to solve delivery problems	Few delivery problems thanks to sound agreements; quality and delivery problems are not tolerated
Incoming inspection	Inspection of quality and quantities of most deliveries	Initial sample inspections; later, no inspections necessary
Supplier assessment	Qualitative assessment; delivery deviations of sometimes up to 10% are tolerated	Deviations are not accepted; price is fixed based on open calculation
Invoicing	Payment per order	Invoices are collected and settled on a monthly basis

The JIT approach is characterized by a regular but flexible supply of materials. Ordered materials are delivered frequently (sometimes, in an assembly environment, several times a day) in different quantities. To facilitate this, the supplier is informed of the production planning and the related procurement requirements on a daily, weekly and monthly basis through delivery schedules which are available online. In this way the supplier is able to anticipate its customer's future requirements and will be able to plan production and materials requirements more effectively. Apart from this, there are some other definite advantages of working with suppliers in this way. Generally, the producer uses long-term contracts, against which periodic call-off orders are placed. Once (or more) a year the conditions are renegotiated with the supplier. Targets for productivity improvement and cost reduction, as required by the producer, are also part of these negotiations. Agreements on these issues are documented and communicated to the supplier. In essence, they are the standards against which the future performance of the supplier is going to be monitored and measured.

As far as quality is concerned, the guiding principle is zero defects. Imposing quality targets upon suppliers may represent large savings to the producer, both in terms of a

reduction of the number of incoming quality inspections and a reduction of buffer stock. In this way the supplier is educated towards a better quality performance.

The practices described are still different from the traditional procurement practices of many European companies. Traditionally these are aimed at creating optimal competition between suppliers. Relations with suppliers are, in this approach, mostly focused on the short term; dependency on a single supplier is considered to be fundamentally wrong. Traditional procurement theory prescribes multi-sourcing, i.e. obtaining materials from various suppliers. The underlying idea is that, in order to mitigate supply chain risks, a company must not become too dependent on one single supplier. Therefore, many manufacturers prefer multi-sourcing in their supplier relationships. Where possible, single sourcing should be prevented.

Looking at the characteristics of JIT, it is clear that traditional procurement managers must alter their views and policies radically in two important aspects, in order to adopt this approach. They should be willing to consider single sourcing as an appropriate strategy and they should be willing to arrange longer-term contracts instead of one-year agreements.

The criteria used to select and assess suppliers must also be adjusted. The demands made by JIT on suppliers are different and (generally) considerably higher. These refer to both flawless product and process quality (zero defects) and delivery reliability (JIT). The purchase price, traditionally a prime issue in the negotiations, usually will get a lower ranking within the selection criteria used.

The JIT approach was initially introduced to the United States and Europe by subsidiaries of Japanese companies. Nowadays, many European companies have followed their example. Philips and VDL were among the first companies to introduce the JIT approach in their European plants in the relationships with their suppliers.

ADVANTAGES AND DISADVANTAGES FOR THE SUPPLIER

The JIT concept has some specific advantages and disadvantages for suppliers.

With the JIT approach the supplier is regularly informed about the quantities to be delivered. The supplier is able to plan its future production volume much better because of this information. The same holds for the planning of materials. As a result the pipeline inventory may be reduced. This advantage will be even larger when the supplier succeeds in implementing JIT principles in the relationship with its own suppliers.

JIT can, besides better planning, lead to administrative savings for the supplier. All handling of transaction documents is done electronically. Suppliers are able to connect their production and materials planning systems with those of their customers. This requires, of course, some sophistication of the computer systems which are available on both sides – this is why some large manufacturers shun those suppliers who do not have sufficient EDI capabilities. When the supplier is notified of quality defects, it immediately should take corrective action. Claims and bills will be avoided.

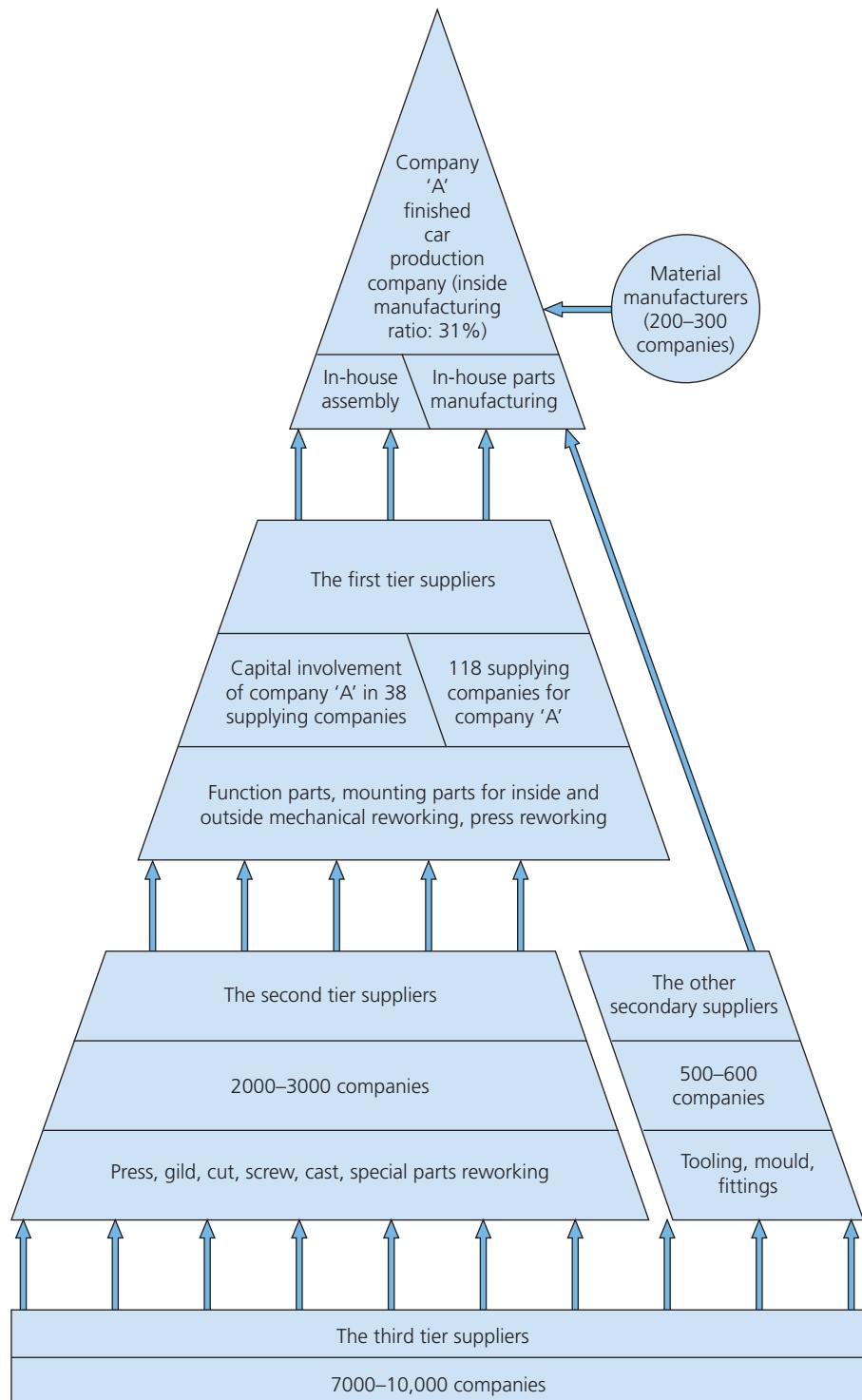
The constant communication between supplier and manufacturer on quality and cost improvements can lead to product and process innovations. These innovations can be very profitable for the supplier in other markets.

A final advantage for the supplier is the investment policy. JIT contracts are signed for a long period of time. A certain volume and turnover are guaranteed. This makes it easier to decide whether and when to invest in new production technology and equipment.

However, engaging in JIT relationships with a manufacturer obviously also has some disadvantages for the supplier. In Japan, these types of relationships have affected not only supplier relationships but also the industrial structure of the nation. In many industrial

sectors a hierarchy can be observed in the different links of supply chains. In general, the large manufacturers, at the top of the supplier pyramid (refer to Figure 9.7), have imposed their demands and requirements rather ruthlessly on the often much smaller suppliers.

Figure 9.7 The supplier pyramid of a car manufacturer (example)



Given the high dependence on these large manufacturers, suppliers had to comply with these demands, at the risk of losing their entire business.

In general, it may take some time for a supplier to deliver at zero defects, or to produce zero defects. In the beginning the supplier has to conduct many quality checks and many products will fail the test. To deliver JIT with zero defects takes great effort and therefore initially requires high investments. These investments are not being paid for by the large manufacturers; they come at the expense of the supplier.

Another disadvantage is that the supplier can become very dependent on only one manufacturer. If the supplier focuses too much on the business of one or two manufacturers, this can become a threat to its continuity. After a long-term contract has ended, circumstances could have changed which could result in the end of the relationship. Given its large dependence on that one manufacturer, the supplier will go to great lengths to secure a new contract. Obviously, when a supplier is not able to keep up with competition and has missed the contract, it will not be easy to regain the lost territory.

In Japan JIT management has resulted in a pyramid-shaped supply structure. In this structure, original equipment manufacturers (OEMs) work closely with system suppliers, responsible for the development and delivery of complete modules (e.g. dashboard units or transmission systems). These system suppliers buy their own materials from a second tier of suppliers. These suppliers, in their turn, do business with smaller suppliers who work on components. At the bottom of the pyramid are the often large and powerful suppliers of basic, raw materials.

This structure is criticized in both Japan and Europe. OEMs often make extreme demands of their system suppliers who shift these demands to their own suppliers and so on. In the end the smaller companies have to make their employees work very hard to be able to survive (therefore the smaller suppliers at the bottom of the pyramid are often referred to as 'sweatshops').

The system suppliers are in many cases strong, specialized and international companies who collaborate closely with their customers. In some cases this co-operation means not only delivering systems or components but also assembling these into the end-product. The system supplier is made responsible for the planning of delivery and the logistics involved. This principle is also referred to as JIT II (refer to Memo 9.2).

Another principle, which is applied in dealings with those systems' supplies, is 'pay for production'. The equivalent of this principle is 'pay for consumption'. The manufacturer only pays the supplier for the components which have actually been consumed during the production of a given day or batch. Through digital information sharing (e.g. EDI) between buyer and supplier, the supplier can monitor every day which components have been consumed at the production lines of the buyer. At the end of the day the balance is made, an e-invoice is sent by the supplier and the amount due paid electronically by the buyer. Pay for production is closely related to JIT.

Manufacturing organizations in Europe are not very eager to follow the example of the Japanese industry. The main objection to the Japanese situation is that they will become too dependent on too few suppliers. Most organizations in Europe also do not encourage too large a dependency by the supplier, which they regard as a too high supply risk. Philips for example wishes suppliers to be dependent on Philips for less than 25 per cent of their turnover.

Memo 9.2

JIT II

JIT II is a concept pioneered by the Bose Corporation. In sales, procurement and material planning applications, the customer planner, buyer and supplier salesperson are replaced by an 'in-plant' supplier employee who is empowered to place customer purchase orders with their company. Supplier access and linkage to customer computers are also utilized. The in-plant supplier also performs concurrent engineering with customer engineering departments from within the customer company. **Vendor-managed inventory** and 'automatic material replenishment' are features of JIT II.

JIT II has been featured in front-page articles in the US and European *Wall Street Journal*, *Harvard Business Review* and other worldwide business periodicals. US corporations such as IBM, Intel, AT&T, Honeywell and many other major corporations have implemented JIT II nationally in scores of supplier relationships. *Business Week* named Bose as one of the 'world class champs' in supplier management. Many corporations have adopted JIT II as part of their sales and customer support programme.



Vendor-managed inventory This is a continuous replenishment program that uses the exchange of information between the retailer and the supplier to allow the supplier to manage and replenish product at the store or warehouse level. In this program, the retailer supplies the vendor with the information necessary to maintain just enough products to meet customer demand.

JIT AND SUPPLIER SELECTION

In the context of supplier selection, suppliers located close to the customer organization are in an advantageous position. Toyota, for example, demands that their main suppliers have production plants within a radius of 30 kilometres. Business is based on open calculations, and agreements about the supplier's quality and delivery performance are concluded in advance. If there are no suppliers in the immediate vicinity, then the company will try to do business with suppliers who are concentrated in particular geographical areas. In that way transport can be combined and the associated costs reduced.

Suppliers are required to deliver with zero defects, so that incoming inspection can be omitted. The reduction of incoming inspections is a gradual process of increasing quality and reliability, which takes time. The right products must be delivered at the right quantities at exactly the right moment. Quality and 'on-time' delivery are the two main criteria on which suppliers are assessed when applying JIT procurement, and the following classification of suppliers is often used:

On-time delivery	A = excellent	B = good	C = inadequate
Quality delivery	1 = excellent	2 = good	3 = inadequate

These scores are a simple way to rate the supplier's performance. A C1 supplier, for example, provides high quality, but does not always deliver on time. At worst this can cause interruptions in the manufacturing process. An A3 supplier, however, delivers on time, but the quality of the products is poor. This means that incoming inspection remains a necessity, which is in conflict with the JIT concept.

In their discussions with their suppliers, buyers consistently emphasize that, preferably, all suppliers have to get into the A1 category, and remain there. A problem can occur if the buyer occupies a weak negotiating position (vis-à-vis the supplier). It will be very hard for a small producer, for example, to induce large suppliers to provide JIT deliveries. In that situation, the producer should try to find more accommodating suppliers, even if this means a higher purchase price.

In conclusion, it is argued that the implementation of JIT principles automatically leads to (more) single sourcing, closing long-term contracts and engaging local suppliers. The central issue affecting supplier selection is not so much the purchase price as the level of the total costs, i.e. the costs including the 'waste' that results from poor supplier performance, safety stocks, quality and incoming inspections, and (possibly) production standstills. Hence, this kind of supplier relationship should be embedded in agreements based on total cost of ownership.

Elements of the procurement information system

Integrating information systems from procurement and supply chain management systems is not easy. It requires from the procurement department that it has fixed the basics and controls its processes. The administrative complexity in procurement can be very high. In a study conducted among 48 medium-sized industrial companies, it was found that these companies had on average 16,600 different article items or stock keeping units (SKUs), which were obtained from 1155 suppliers. On average 19,980 purchasing requisitions had to be processed, which resulted in 18,900 orders. The deliveries were paid for by processing 26,980 purchasing invoices. These numbers show that a solid and efficient administrative organization is a prerequisite for the functioning of any procurement organization, if it is to focus on the tactical and strategic tasks related to supply chain management.

Figure 9.8 Major elements of a procurement information system

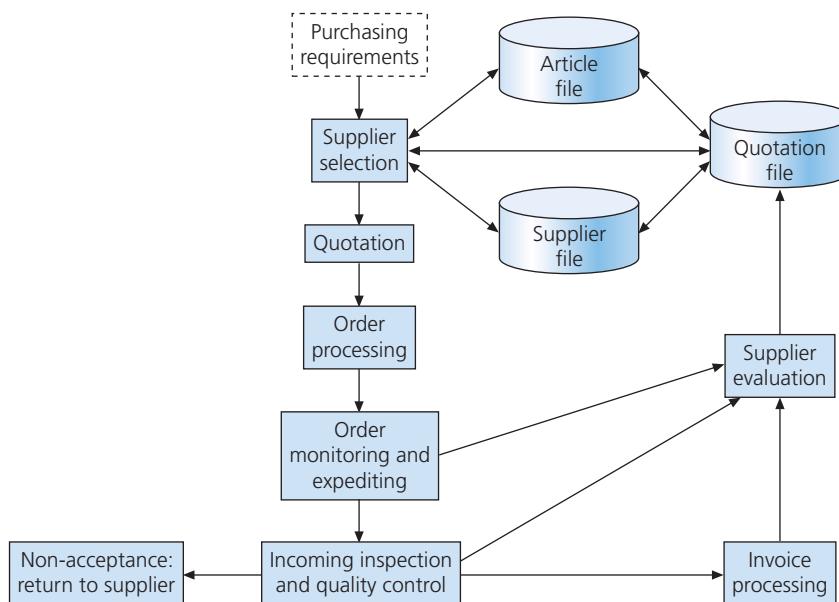


Figure 9.8 shows the most important elements of a procurement information system:

- Requisitioning and ordering. The internal users within the company express their requirements regarding goods or services to be purchased by means of procurement requisitions. These requisitions can be generated directly by the MPS, but they can also be generated manually. This is often the case for non-recurring purchases

(e.g. investment goods). The procurement requisition lists the article code (SKU number), provides a general description of the item, the quantities required, the desired delivery date and the data necessary for finance and administration (budget number, account number, etc.).

- Product, contract and supplier database. The data on the procurement requisition is then transferred by procurement to a purchase order document. Here, specific supplier and product data are added, such as the price per unit and the address where the order should be delivered. In the case of a framework agreement the purchase order also mentions the contract number. All purchase orders get a unique purchase order number, which should be used by suppliers in all future correspondence and documents. The purchase order is the basis for delivery. Without it, a supplier should neither deliver nor get paid. Some manufacturers require their suppliers to confirm their orders prior to delivery (by means of an order confirmation).
- Order follow-up. Subsequently the order must be monitored (order follow-up or expediting). Delivery of the goods by the supplier in accordance with the agreement must be checked. To ensure effective monitoring, the buyer uses numerous exception reports. One of the most important of these is the delivery overdue list, which lists the products that should be delivered by a certain date but which have not yet been delivered. Another important list here is the incoming inspection report, which lists the products that at delivery have been rejected by quality control. Of course, in these cases, the buyer will need to take immediate corrective action (this activity is referred to as 'trouble shooting'). Some advanced procurement systems allow the buyer to assign a code to purchase orders, strategic materials and unreliable suppliers. This code is used for generating several signalling reports through which the buyer can take preventative action: those suppliers are usually requested via email to confirm and restate that they will meet the required delivery dates (this enables a differentiated approach to order expediting). In case of delivery of complex investment goods, it may be necessary to visit the supplier several times during production and assembly. This type of expediting is referred to as field expediting. This way of working is common in the defence and aircraft industries.
- Delivery. Normally, the supplier will deliver the goods which have been ordered at the right time and at the right quantity. At delivery, the supplier will produce a delivery document (freight bill) which needs to be signed by personnel of incoming inspection. They will check the delivered goods against the (electronic) order copy. Both quantity and quality are inspected. When approved, a copy of the delivery document is sent to finance and administration. At the same time, the goods are released and shipped to warehousing or the user. When the shipment by the supplier does not match the original order, a complaint form is filled in. Complaints may relate to quality, delivered quantity or packaging. This data is again entered into the system. These are the basis of the supplier rating system, which records the performance of a supplier in a given period. Complaint reports are sent to procurement who will discuss the problems with the supplier to prevent them being repeated in the future. When handled by procurement, the form will be sent back to the quality control department, which will authorize the report and file it.
- Invoice handling and payment. Shortly after delivery the supplier will send an invoice. Normally, the invoice will be sent to finance and accounting (i.e. accounts payable department) who will match it with the original purchase order

and the delivery document. When matching is possible, the invoice will be paid according to the agreed payment terms. Sometimes matching is not possible. In that case the invoice is sent for approval to procurement, who will investigate why the invoice does not match with the purchase order. After the differences are cleared, the invoice will be sent back to the accounts payable department for final handling.

In recent years various information systems have become available to procurement managers which enable flawless information processing and sharing as required by the activities described. Examples are SAP, Oracle, JD Edwards, MAPICS and MFG-PRO. These systems have been found appropriate for supporting transactional P2P processes. However, in many cases they are still not capable of producing procurement management information. Most systems have difficulty in providing overviews of spend figures ranked by product, supplier, purchaser, country or currency. Furthermore, they often lack facilities to support advanced supplier rating, supply market analysis and/or supply chain monitoring. Obviously, in this area there is still a lot of work to be done by the large **enterprise resource planning (ERP) system** providers.

Co-ordination problems between procurement and supply chain management

This chapter has made clear that production planning and materials planning in most companies are far from simple matters. The large amount of data to be processed and information shared across the supply chain, the huge differences in the demand structure of products and the related differences in predictability of expenditure, render these subjects extremely complicated in practice. It is therefore not at all surprising that in practice many problems are encountered between procurement and supply chain management. Some typical problem situations are:

- Lack of well-defined specifications. Specifications are sometimes described ambiguously and the BOM can be incomplete. In a recent investigation of a manufacturer of food products, it was found that specification sheets were absent or incomplete for 50 per cent of the raw materials that were being purchased. This made it very difficult if not impossible to purchase materials at the right quality (because actually it was not clear what the right quality was); each stakeholder in the discussion (production, laboratory, quality control, suppliers) appeared to use its own definition. The result was a very high reject rate on incoming raw materials and a lot of unproductive discussions among the persons involved.
- Lack of standardization. Needlessly complex specifications are sometimes used where standard products would suffice. These limit the buyer's latitude and lead to an expansion of the article assortment. The result is an increasing administrative and logistic complexity and often an excessive dependence on one supplier.
- Frequent changes in materials planning. Frequent changes in the materials planning due to changes in the production planning disrupt the delivery schedules with suppliers. The consequence is that delivery agreements have to be cancelled or deliveries have to take place before the agreed delivery dates. This increases the number of rush orders and the cost of non-quality to an unacceptable level.

Enterprise resource planning (ERP) system A company-wide information system for managing the company's operational and support processes, administrative processes, human resources, materials resources and financial resources.

- Unreliable planning information. MRP systems must be provided with sound information. Keeping master data, i.e. basic product and logistics information, up-to-date is an important task. Working with incorrect stock and delivery information causes (unnecessary) orders to be placed that do not respect the supplier's lead-times, which generates extra work and raises transportation costs.
- Insufficient integration of procurement in supply chain management. When it is decided to automate the production and logistics systems, procurement often lags behind. The problems which result often become clear when supply chain managers want to add a procurement control module to their digital materials planning systems. Then it turns out that descriptions of materials and articles must, for example, be available in four languages, that the units in which purchases are made (for instance in metres or kilograms) differ from the units which are invoiced (units, volume), etc. Implementation of procurement systems may then take years instead of months.

These problems show that integration of supply chain and procurement systems is a far from simple matter. It may take years to develop a systems solution that is satisfactory to both supply chain and procurement managers. Cross-functional co-ordination and integration of systems may be facilitated when procurement together with other supply chain activities (e.g. logistics, operations) is reporting to one overall responsible supply chain executive (e.g. Chief Supply Chain Officer – CSCO), which explains the growing popularity of this function.

Summary

In this chapter, the relationship between procurement and supply chain management has been discussed. The co-operation between these functions should result in an efficient and uninterrupted flow of products. This requires an integrated approach to managing materials planning processes. Apart from materials management and physical distribution, we have described the role and importance of logistics for supply chain management. Supply chain management looks at how to optimize materials processes throughout the whole supply chain. These are no simple matters, since in reality customer demands seldom fit exactly to the capabilities of the firm. Therefore, many advanced materials planning methods have been developed, the most important being materials requirements planning and manufacturing resources planning. Both systems are basically forecast-driven and require the use of advanced computer-supported planning systems.

Apart from forecast-based planning systems, companies may use order-based planning systems. JIT scheduling is a third type of planning system. Basically, it is forecast-based; however, it is aimed at continuously reducing cycle times and lead-times, so that planning horizons may be shortened. Suppliers play a vital role in implementing JIT. They need to be challenged constantly to look for ways to improve their operational processes. In the end this may result in a situation where suppliers are requested to fully integrate their activities with those of their customers. This principle has been referred to as JIT II.

This chapter has also presented five different structures which may underlie a company's production and logistics activities: make and send to stock (MSS), make to stock (MTS), assembly to order (ATO), make to order (MTO), and engineer and make to order (ETO). A central element in the discussion has been the customer order penetration point. Downstream from this point all activities are customer-order-driven; upstream of this point activities are forecast-based. Understanding this principle is necessary to understand how procurement processes may vary in an organization.

Managing supply chains requires a lot of very detailed data and management information. Therefore, the most important elements of a procurement information system have been discussed. The conclusion is that most available ERP systems are capable of supporting the operational, transactional procurement activities. However, they do not sufficiently support the needs of generating management information and reports.

Assignments

- 9.1** Supply chain management is about managing the materials flows, information flows and financial flows throughout the supply chain. Discuss how Li & Fung in the introductory case study of this chapter keeps control of each of these flows.
- 9.2** What would you consider to be the main difference between supply chain management and value chain management?
- 9.3** Supply chain management assumes that the companies involved in the supply chain are willing to work closely together and are willing to develop partnership relationships. How valid is this assumption in your opinion?
- 9.4** Some critics argue that the supply chain concept is too narrow a view of the reality that can be observed in many industries today. Rather, they favour a 'supply network' or 'supply ecosystem' approach since they feel this reflects much better the interdependencies that may exist between customers and suppliers in several sectors. What is meant by this statement? When optimizing supplier relationships, what view do you favour? Discuss.
- 9.5** What logistics concepts can be used to optimize the logistics flows between a manufacturer and a supplier? What can both parties do to take costs out of the supply chain? Investigate and discuss.

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10 Supplier relationship management

Learning objectives

After studying this chapter you should understand the following:

- How to build successful supplier relationships.
- Procurement's role in and contribution to quality management.
- How to set up a supplier quality assurance (SQA) programme.
- What methods and techniques to use to assess suppliers.
- Supplier cost modelling and how to apply the learning curve.
- How to segment suppliers.
- What it takes to develop suppliers into business partners.

Introduction

'Tapping into the enormous capability of thousands of suppliers with whom we do business is perhaps the single largest opportunity procurement has!' John Paterson (former CPO of IBM) once said. Since the early 2000s more and more CPOs and even CEOs of well-known companies have stressed the importance of collaboration with suppliers. Paul Polman (former CEO of Unilever) stated: 'We need to work closely with our suppliers in order to have best-in-class capabilities, sustainable practices and innovation. We can't achieve our business strategy without collaboration with our key suppliers.'

In today's world, where businesses and societies become even more interlinked and interdependent, procurement seems *too narrow* a term. The whole supply chain needs to be optimized from an end-to-end perspective.¹ Buyers need to 'create a win-win situation for their company *and* suppliers'. Some academics (Keith et al., 2015) suggest that strategic sourcing should be aimed at defining the best possible relationship model (or 'sourcing business model') between a buyer and supplier with the goal being to optimize their cost, value and risk exchange. Such an exchange can be very different in character, ranging from transactional to collaborative or something in between (refer to Figure 10.1).

¹End-to-end perspective means looking at the entire value chain, ranging from the suppliers of base materials up to the final consumer.

Figure 10.1 Comparison of transactional versus collaborative orientation

Source: Author construction inspired by Axelsson, B. and Wynstra, F., Buying business services, John Wiley & Sons Ltd. (2002, p. 215).

Transactional orientation	Collaborative orientation
<ul style="list-style-type: none">• Every deal is considered separately• Play the market and let suppliers compete• Buy products• Realize lowest price	<ul style="list-style-type: none">• Every deal is part of an ongoing buyer–supplier relationship• Exploit collaborative relationships with suppliers• Exchange resources and capabilities• Realize highest possible returns on relationship by sharing resources and capabilities, exchange risks, costs and value in the best possible way

Case study

IKEA and supplier relationships

IKEA aims to develop close and long-term relationships with suppliers that are willing to share IKEA's values and want to grow together with IKEA. Instead of engaging in short-term relationships with many smaller suppliers, where the focus is on buying products against the lowest prize, IKEA is increasingly engaging in long-term relationships with fewer suppliers, where the focus is on sharing resources and capabilities, and exchange value, costs and risks in the best possible way. As a consequence, IKEA reduced the number of home furnishing suppliers from 2500 during the 1990s to about 1600 today, of which 1000 are home furnishing suppliers. The average length of relationship is 11 years. As the reduction in the supply base has occurred in parallel with a steep increase in IKEA's turnover, several suppliers are now, on average, much bigger in terms of turnover. Moreover, to gain direct influence over suppliers' operations and product quality, as well as to reduce costs, IKEA has also replaced intermediate traders. IKEA has the ambition to achieve better integration across the supply chain.

This required a new attitude towards supplier relationships. Whereas IKEA previously simply demanded a certain level of quality, service, price and environmental and social responsibility of its suppliers, the company is now developing these issues together with its suppliers. Furthermore, during the 2010s, IKEA's sourcing strategy has been to use suppliers that can deliver large shares of their turnover to IKEA (up to 60–70 per cent of their total production capacity). Suppliers are always required to adopt IKEA's standards throughout the company and such a principle is easier to maintain if suppliers sell the major part of their production to IKEA. However, 100 per cent delivery to IKEA has never been a target for IKEA, because that would create too much dependence on IKEA.

Previously, when price and quality mattered most in the relationships with suppliers, it was custom that IKEA jumped from one supplier to another. As a consequence, supplier relationships were troublesome. This has changed. Today, IKEA tends to develop collaborative relationships with reliable suppliers, and when a supplier collaborates with IKEA, IKEA will support them to grow their business. In sum, instead of having short-term relationships with many small and separate suppliers, the ambition is to collaborate on a long-term basis with fewer (and larger) suppliers that supply the majority of their production to IKEA, as well as achieving closer integration among all actors along the supply chain.

Source: Adapted from Boström et al. (2013) and completed with other sources available on the internet (e.g. IKEA website).

A large company like IKEA works with a large number of suppliers, so it can compare the most effective manufacturing techniques across suppliers, track down inefficiencies in the production process of a specific supplier, provide the latter with suggestions for improvement and therefore secure better prices. As a result, it turns supplier relationships into a source of competitive advantage that is difficult for competitors to copy. Companies that would seek competitive advantage from suppliers could think about the following questions:

- Does a particular supplier belong to the best-in-class companies in their industry?
- What is the supplier's cost breakdown in terms of overhead, energy, labour and materials?
- Does the supplier benefit from experience learning curve effects in its operational or service processes?
- What are the costs of non-quality, i.e. waste for this particular supplier?
- What is the improvement potential for this supplier?

The answers will indicate whether a particular supplier is among the most advanced and respected companies in a particular industry, or is lagging behind.

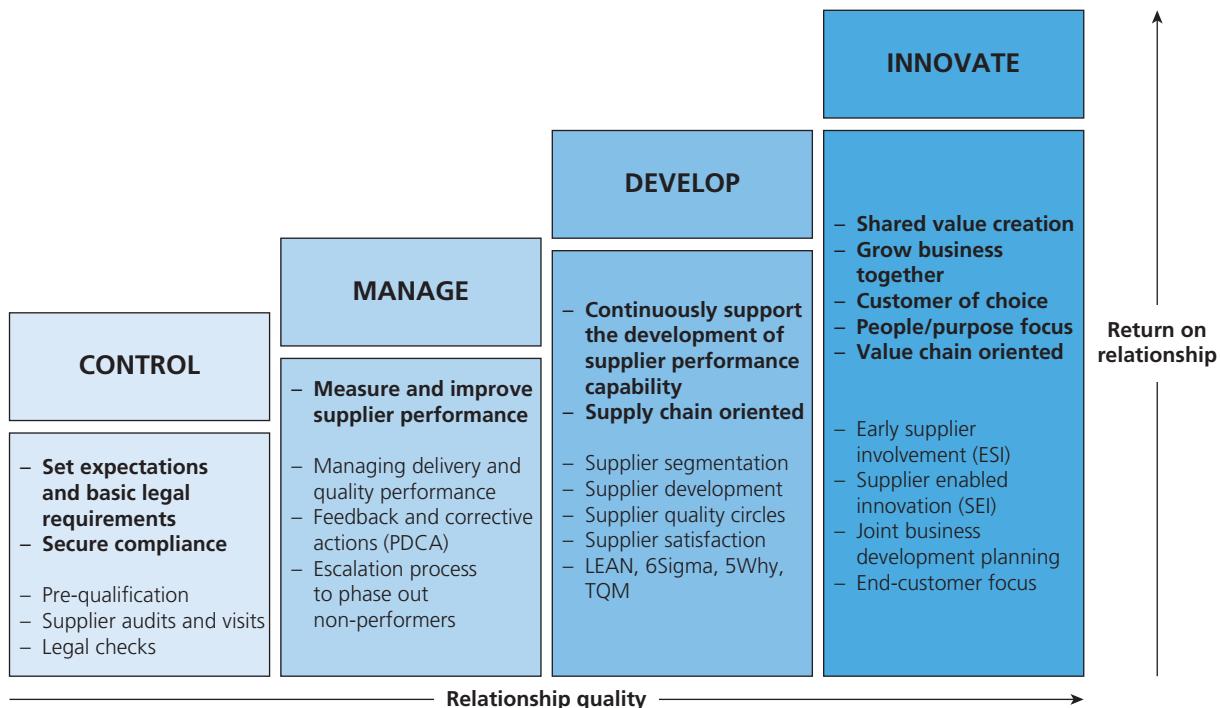
Supplier relationship management: a framework

Supplier relationship management (SRM) is forward looking. For buyers the focus is on developing collaborative relationships with their key suppliers to exploit opportunities for pooling resources and developing new competitive capabilities to co-create innovative business solutions. Questions suppliers should be asked are, for example, 'How can we reduce CO₂ emissions by 50 per cent by 2030?' or 'Are you willing to start five co-innovation projects with us next year?' This distinguishes SRM from traditional buying and supplier management, which is based on monitoring historical supplier performance data (e.g. quality, delivery) and also on evaluating whether suppliers comply with what has been agreed upon in the contract.

Traditional buying and supplier management are, in a way, backward looking. Typical messages that illustrate these practices are: 'Your current delivery performance is not what we agreed upon, and if you do not improve you might force us to switch to another supplier', or: 'If you want to keep our business, I expect you to reduce your prices by 5 per cent next year'. As a result, suppliers will operate at a distance ('at arm's length') from customers and they will be reluctant to invest in the relationship. Even worse, this traditional buyer attitude may lead to adversarial relationships where parties lack trust. As a result, many opportunities to benefit from supplier knowledge, expertise and commitment are not captured.

SRM is a rather new activity in the procurement domain and difficult to develop. When embarking on SRM, companies need to go through four different management activities: controlling, managing, developing and innovating (refer to Figure 10.2). Each activity is explained in more detail next.

SRM starts with the need to get **Control** of your supply base. This requires having clear and professional procurement and sourcing processes in place, which will enable companies to have clear routines in dealing with their suppliers. As a result, suppliers will understand how a company wants to do business with them, what performance to look for and what legal requirements need to be complied with. Buyers need to ensure that suppliers fulfil these requirements. Arriving at such a situation may require the buyer to prequalify some

Figure 10.2 Supplier relationship management framework

of the suppliers, undertake supplier visits (or even audits) and perform a check on the supplier's financial and legal references. When this is done properly, the buyer will control who become their suppliers and will ensure that they are onboarded in the correct way, that their key data is traceable in the procurement information systems, etc. This will all prevent new unknown suppliers from being introduced without proper screening.

Once the basic controls are in place, the buyer will start to work on managing their suppliers. **Manage** is about managing suppliers towards full contract compliance, making sure that what is required and what has been contracted for are actually what occurs. Supplier management is about evaluating, measuring and monitoring supplier performance (quality, delivery), giving feedback to suppliers and asking for corrective actions and improvements where needed. This feedback in particular is deemed to be very powerful. Many suppliers only improve as a result of the fact that their performance is measured and fed back to them. At this stage, buyers are still not deeply involved in the improvement processes as supplier management is more indirect and from a distance (i.e. measuring performance and providing feedback to suppliers). Suppliers are considered to be the prime actors in keeping their performance level in line with customer expectations.

However, as practice shows, suppliers will start to speak up when confronted with performance feedback and they will point out their dependency on the buyer's buying behaviour. Last minute changes in specifications, rush orders and late responses to questions may cause significant delays in supplier deliveries. Suppliers will be able to provide numerous suggestions on where the buyer could or should improve their organization, behaviour and information flows. If accepted and understood by the buyer, this stage may be the beginning of a mutual and ongoing dialogue on how to improve operational performance from both sides. Next, the relationship may gradually transit to the Develop stage of the SRM framework.

After supply base control and supplier management, companies can decide to start supporting suppliers towards creating better performance. This is referred to as supplier development. So **Develop** is about continuously supporting suppliers in developing their performance and capabilities. The buyer may support suppliers, for example, through specialist knowledge sharing and supplier training programmes, on-site consulting projects, or peer-to-peer problem solving with supplier teams. Dave Nelson, former CPO of Honda of America, once shared an example with us of how Honda worked with a new supplier that was able to submit a very competitive bid for one of Honda's parts. Having looked at the bid in detail, Honda decided to visit the supplier in order to help them optimize their production facilities. Honda sent one engineer. He came in, looked at the situation, took off his coat, rolled up his sleeves and asked for water and cleaning materials. He started to clean the production machines. People looked astonished, but not much later they helped him to clean the machines. The next day, the engineer asked for some paint and started to paint the equipment. Next, the work-floor was cleaned and organized. Next came the room for tooling and spares. After a week the whole area looked brand new, it was clean and shiny and it made people feel good. It was only then that he started to look into the production process.

The Honda example shows that supplier development requires investments in time and resources from the buying organization. Therefore, buyers need first to select the most promising candidates for supplier development before they start. This often involves some form of supplier segmentation and/or supplier screening. Supplier development focuses mainly on cost, quality, delivery and sustainability performance, and less on innovation.

Innovate is the stage at which buyers involve suppliers actively in innovation projects and intend to grow business together with their suppliers. By this time they will have distinguished between business-critical suppliers and non-business-critical suppliers. Time and effort are spent on improving the relationship with business-critical suppliers, as these are considered crucial in helping the company realize its strategic business goals and strategies. At this stage, the buyer is fully aware that the business-critical suppliers usually are the experts in their business. For these buyers it is clear that they should make full use of their knowledge and experience to develop and/or improve the customer value propositions of their company. This practice is often referred to as Early Supplier Involvement (ESI), Supplier Enabled Innovation (SEI), Co-innovation, Innovation Sourcing or Joint business development.

By moving through these different SRM stages, supplier relationships will become closer and more collaborative, while at the same time the potential business returns resulting from these relationships will increase. The idea of the framework is that it is very difficult to start innovating with strategic suppliers when buyers are not in control of their suppliers, they have not yet segmented their supply base and have no idea who are their best performing suppliers.

One of the questions is to what extent every stage of this model needs to be followed for each spend category or supplier. The more strategic a product or service, the more energy and investments a company may be willing to make. Therefore, for many products and suppliers, it will not be necessary to go through the full cycle. Stage 1 of the SRM framework, Control, has been discussed extensively elsewhere and innovation is also discussed separately. The remainder of this chapter focuses on what it takes to manage and develop supplier relationships. However, before doing so, the importance and role of quality management for procurement and SRM will be explained.

Procurement and quality management

Underlying the SRM framework is quality management. Quality management is an important enabler for supplier development as it helps the buying company to do things right. The role of procurement in total quality management can barely be overstated. This is because the quality of the finished product is determined to a large extent by the quality of the raw materials and components. Working on improving the quality offered by the suppliers is therefore a main task for buyers. For this reason, many large manufacturers in Europe have initiated **supplier quality assurance (SQA)** programmes.

Quality assurance is concerned with maintaining the methods and procedures of quality management, i.e. systematically checking that they are efficient, that they lead to the desired objective and that they are applied correctly. Internal company assessment of quality procedures is often called *auditing*. External assessment is referred to as *verification*. An external assessment establishes the degree to which the methods and procedures used satisfy the conditions that have been recorded in national and international standards. The best known are the ISO 9000 standards,² which are accepted in many European countries.

After product specifications have been released, the procurement department must ensure that they will be met by the supplier. The components that are to be manufactured must remain within these specifications. In addition, the procurement department has to ensure that suppliers will honour their agreements on other terms, such as delivery time, quantity ordered and price.

What exactly is quality? The literature on the subject contains almost as many definitions as there are authors who have written about it. A distinction is made between concepts such as 'functional quality', 'physical quality', 'fitness-for-use', etc. One common definition of quality is: 'The total of features and characteristics of a product or service that bear on its ability to satisfy a given need' (American National Standards Institute). Without wanting to do any injustice to this definition, IBM's simple definition of quality is favoured by the authors: 'Quality is the degree in which customer requirements are met. We speak of a quality product or quality service when both supplier and customer agree on requirements and these requirements are met.'

The requirements mentioned in this definition can relate to the technical properties of a product or service. However, they can also relate to user-friendliness, ease of maintenance, delivery agreements and packaging instructions. Here, we propose to take a broad view in that the quality concept is related to more than just the physical properties of the product.

Quality management is defined as: 'Making sure that the requirements are met and being able to demonstrate this objectively'. This implies that for every transaction between customer and supplier, they need to agree on:

- the basic requirements of the transaction
- the way in which the requirements are to be realized
- how to check that the requirements are (being) fulfilled
- the measures to be taken when the requirements/expectations are not met.

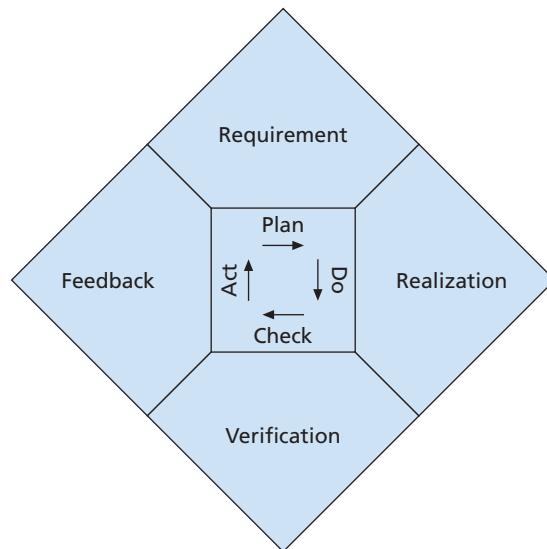
These steps form the four basic elements of the plan-do-check-act cycle, which is shown in Figure 10.3.

Supplier quality assurance (SQA)

Supplier quality assurance is all activities conducted by a company to arrive at a zero defects quality performance in its relationship with suppliers.

²See www.iso.org for more information.

Figure 10.3 The plan-do-check-act cycle



In summary, quality management relates to all activities and decisions aimed at taking the organization's products and services to the desired quality level and to maintain that level. Quality management therefore requires intensive consultation between the various departments in the organization and with suppliers and customers. After the desired quality level has been established, the complete production process must be organized in such a way that this level of quality is reached and maintained in a controllable manner. To accomplish this, quality management has at its disposal four interrelated functions: setting quality standards, quality assessment, quality control and quality assurance. This last activity will now be addressed in more detail.

Quality assurance is an important criterion for supplier selection. What guarantees can the supplier give with regard to design and technical specifications? According to what quality standards is it proposed to operate? Quality assurance is concerned with keeping up the methods and procedures of quality management, i.e. systematically checking that they are efficient, that they lead to the desired objective and that they are applied correctly.

Crosby (1984), one of the founding fathers of quality management theory, pointed out that it is not so much quality, as the lack of it, that costs money. The concept of quality costs can be used to initiate quality improvement initiatives. In many companies a considerable number of work hours are spent on the inspection of incoming goods and on solving acute quality problems (troubleshooting, firefighting). The costs involved are often invisible and many companies have absolutely no idea what the lack of quality is costing them. Making these costs transparent begins with classifying them. In practice three types of quality costs are distinguished:

- Prevention costs: the costs of preventing errors.
- Assessment costs: the costs related to the timely recognition of errors.
- Correction costs: the costs that result from (rectifying) mistakes.

Prevention costs are all costs that are related to actions aimed at preventing quality errors. Prevention costs therefore include the expenses related to the development, implementation and control of the system of total quality management. This concerns matters such as:

- conducting systematic product inspections
- executing process controls
- ensuring that product inspections and process control (auditing) are conducted systematically and periodically
- investigations to uncover the causes of errors and mistakes
- setting up the internal organization of quality management
- drawing up specifications, procedures, instructions and regulations for the total quality management system
- the development of special testing and measuring equipment and other tools in support of quality assessment
- education, training and motivation of personnel on quality management.

Assessment costs are incurred to minimize the consequences of errors. Examples are:

- incoming or acceptance inspection of purchased goods
- inspection of intermediate and semi-manufactured products
- sorting the goods produced (100 per cent inspection) to track down faulty products and to separate them from good products
- final inspection of products and quality assessment of finished products
- registration and processing of and reporting on the measuring data.

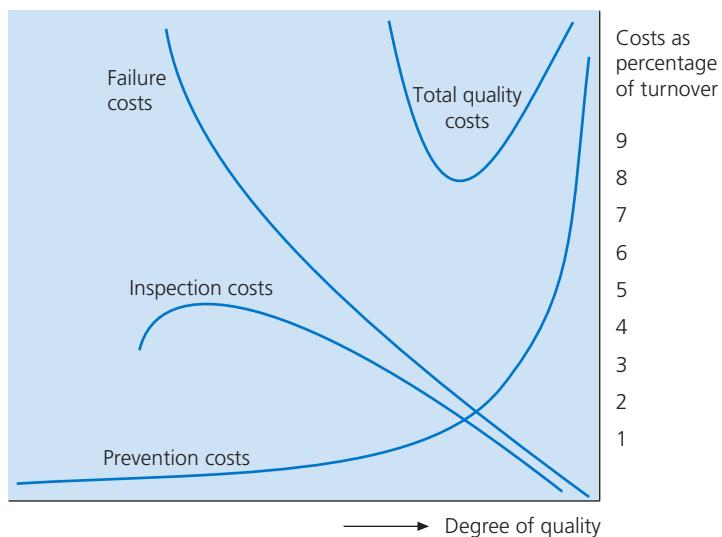
Quality can be present in various degrees. This must be taken into account during the inspection procedure of a product series. Some of the rejected items may be made suitable for the client's production process by minimal rework. However, these corrections come with a price tag. The so-called error costs are usually divided into internal and external costs. Internal error costs (including wastes and losses) emerge as a result of mistakes which are noticed in time, i.e. before the product is delivered to the customer. These include:

- the costs of corrective measures
- losses due to product downgrading
- losses due to a reduced speed or even a standstill in production, caused by quality deviations in materials or components.

External error costs are a result of flaws identified by the customer. This group includes:

- the costs of processing complaints
- costs made for settling customer and supplier claims and disputes
- costs of processing return shipments from customers
- loss of 'goodwill'
- reputation loss (safety, ethics, sustainability).

For many years, the emphasis has shifted from correction to prevention. In an attempt to reduce the total quality costs, preventative quality management has been enhanced. This is illustrated by Figure 10.4, which shows the quality costs model.

Figure 10.4 The quality costs model

Supplier quality assurance (SQA)

An important role in the implementation of total quality management is reserved for the procurement department. This is because the quality of the finished product is determined to a large extent by the quality of the raw materials and components. Working on improving the quality offered by the suppliers is therefore a main task for buyers. For this reason, many large manufacturers in Europe have initiated SQA programmes.

To improve the quality of their products, many manufacturers opt for an approach based on prevention. Co-operation is required from every department in the company, and this also applies to the procurement department. With regard to procurement, the objective of prevention is to maintain or improve the quality of goods and services to be purchased. This is based on selecting the supplier who can guarantee a sufficient level of quality. It is important that the supplier can also guarantee this quality level for the future. The preventative approach is expressed by the following measures:

- Preparing the purchase order specification. Sound preparation is half the battle. Many problems can be prevented if there is an up-to-date, complete purchase order specification, and it goes without saying that this specification contains a technical description, supplemented with the engineering designs and technical drawings. It will also contain an estimate of the materials requirements for the short and middle term, and additional logistic requirements such as packaging and transportation requirements. At this stage, clear sign-off procedures are important. The release of designs to suppliers cannot take place without the procurement department's approval. This procedure also includes a description of how to deal with future engineering changes.
- Preliminary qualification of (potential) suppliers. Here the distinction between potential and existing suppliers must be made. Potential suppliers are sent

a questionnaire before they can qualify for an order. The purpose of this questionnaire is to gain insight into the references and capabilities of these suppliers. This involves, for example, a signed-off approval from the supplier that they comply with health, safety and quality standards, supplier codes of conduct and legal requirements. After a positive evaluation of the responses, a second round takes place. A team consisting of a buyer, a quality expert and a production manager visits the supplier and subjects the supplier's quality system in particular to an investigation (quality audit). A statement is then made about a possible order. As a rule, buyers document the results of their investigation and report on these to the supplier's management. Weaknesses found in the supplier (quality) organization and process are discussed. Corrective measures are suggested and agreed upon. These are written down by the supplier in a quality improvement programme. The activities recorded in this programme are checked in periodic progress meetings. Based on the observed progress it is determined whether a supplier qualifies for orders related to new (development) projects or if it can only supply existing projects. Of course, there is a third possibility: that the relationship is terminated.

- Sample inspection procedure. The next step on the road to acceptance of a new supplier is the sample inspection procedure. The supplier is requested to manufacture a sample product in co-operation with the engineering department. This product will then be assessed on its conformance with the requirements as agreed beforehand. Suggestions to improve the product can be elaborated by the supplier as well as by the development team. This type of co-operation results in a certain degree of co-design. A number of large manufacturers use the number of times that the sample has to be offered for final approval (the initial sampling reject rate) as a measure of the supplier's design capability. The most important objective at this stage is to establish the degree to which the tools (moulds, templates) that will be used to produce the products will meet the requirements.
- Delivery of first and subsequent pre-production series. The next step is to have the prospective supplier manufacture a pre-production series. Specialists from the buyer's company will be present during production to audit the process. Attention is paid specifically to the degree of process control and the functioning of the quality management organization. Afterwards, the strong and the weak points of the process are analyzed and agreements are made about adjusting the process. In the end this co-operation can result in a partnership agreement.
- Manufacture of the first production series. This is the moment of truth. Has the supplier lived up to its agreements? Is it capable of really meeting the zero-defects requirement? The customer checks the delivery completely: all products are inspected for quality (100 per cent inspection). If everything is satisfactory, then the level of inspection is reduced. The ultimate goal is to reach a situation of direct acceptance of delivered products, i.e. without incoming inspection. In this way, the buyer will save on inspection costs.
- Quality agreement and certification. As a rule, a quality agreement is closed when the objective of zero defects has been reached. This agreement determines that the supplier will manufacture the products involved in the way agreed upon with the manufacturer. It also describes the change procedures, which are so very important: in what way should the manufacturer and the supplier act if

it is necessary to change the design specifications or the production process? The quality agreement usually involves one product (article code). The supplier who proves able to supply, without any defects or mistakes, all deliveries of all products which are purchased from it is awarded a certificate by the manufacturer. These certificates are either based on external certification schemes (awarded by third-party certification bodies, such as ISO terms) or are part of the private certification schemes of the buying companies. The certified supplier is placed on the final list of preferred suppliers, which means it is also eligible for new, future projects. If there are no problems, these suppliers' deliveries are subjected to inspection only a few times each year.

- Periodic verification. The instructions to the supplier with regards to what process improvements to implement must be checked periodically. Should it turn out that the targets were set too high, adjustments can be made. If the targets are met, then this results in new targets being formulated. In this way, the concept of continuous quality improvement (or *kaizen*) in the relationship with the supplier is given substance. At this stage, many large manufacturers work with computer-supported supplier rating systems, which are used to record and report on the suppliers' performances on several aspects.

SQA allows the procurement professional to learn about their suppliers' capabilities to improve their product, processes and organization. In many cases technical specialists from the buyer's company pay visits to suppliers to help them to sort out specific technical problems, or to advise them on a better and more efficient layout of the production department. Of course, once a supplier has invested in improvement measures and has actually demonstrated better performance, they should be recognized for that. No better recognition than to allocate more business to them. SQA therefore is a critical activity that assists buyers to gradually, step by step, allocate more volume among fewer suppliers, resulting in less complexity, fewer unpleasant surprises and much better relationships.

Implementing the SRM framework: supplier management

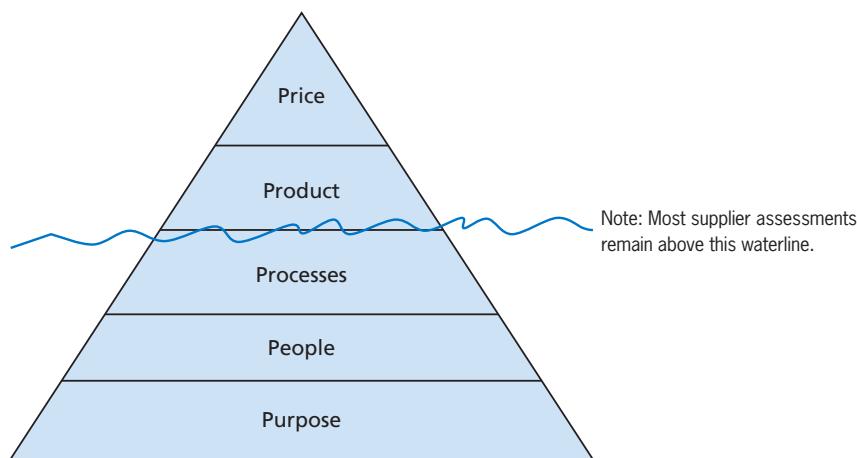
The growing role of suppliers in the company's value chain increases the need for objective assessment and management of supplier performance. In many cases it is not sufficient that the supplier is able to meet the materials and services requirements of today. The buyer also wants to determine whether a supplier is sufficiently equipped to live up to the company's longer-term requirements and needs. In addition, an increasing number of buyers have set up sustainability performance measurements for their suppliers in order to comply with sustainability standards for their supply chain. This requires knowledge of the strong and weak points in the supplier's performance. Furthermore, it is necessary to know whether the supplier can guarantee sustained continuity of supply. The systematic gathering of supplier performance data enables the buyer to negotiate strict agreements about improving reject rates, reducing total lead time, reducing carbon footprint and contributing to cost reduction.

Supplier management requires a clear approach to assessing suppliers and how to monitor the suppliers' pricing and cost behaviours.

Supplier assessment

Supplier assessment levels and methods of supplier assessment are discussed next. In general, supplier assessment may be done at five different levels, which are referred to as the 5 Ps of procurement (refer to Figure 10.5):

Figure 10.5 The 5 Ps of procurement



Supplier assessment levels

Supplier assessment may take place at five different levels of abstraction: price level, product level, process level (e.g. quality assurance system level), people level (e.g. management style, knowledge and expertise of supplier employees involved) and purpose of the company level (e.g. sustainability strategy, shared values, responsible leadership).

- Price level. This relates to assessing both the supplier's price and cost levels. Are the supplier's prices fair and competitive? As salespeople in general are not willing to reveal their actual cost information, it is the task of the buyer to investigate the supplier's pricing and cost structure. Methods to be used here are cost modelling and value chain mapping. Of course, these activities are limited to those suppliers that make up the majority of the company's cost price and spend.
- Product level. This level focuses on establishing and improving the supplier's product quality. This starts with close monitoring of incoming goods, when every product is checked on substance and quality. The outcome may be that goods are approved, reworked or returned to the supplier with the request for corrective actions. Of course, the quality performance is monitored through a small set of quality KPIs.
- Process level. Here the buyer focuses not so much on the product as the subject of inspection, but rather on the quality of the supplier's processes (production, logistics, quality management, procurement, supply chain management) needed to produce and deliver the product, which should be covered by the buyer's SQA methodology. The results are recorded in quality and process audits.
- People level. Here the quality, motivation, innovativeness and sustainability awareness of the supplier management team and operational workforce are assessed. By assessing the actual behaviour, management style, craft, skills and experience in certain areas (e.g. engineering, technical expertise and level of education) the buyer tries to establish how competitive that particular supplier will be in the near future. The result is recorded in a supplier management audit.
- Purpose level. Here, auditors not only focus on price, product, processes and people, they also take purpose aspects into consideration. They want to gain an understanding of the purpose of the supplier (i.e. long-term commitments, sustainability goals and ambitions, business strategies, shared values and beliefs, integrity).

Supplier assessment methods Includes supplier evaluation, supplier rating and supplier audits/visits.

In practice, most supplier assessments are limited to the first two levels of price and product; deep dives below the surface are still not common practice.

There are different **supplier assessment methods** that can be used. In general, supplier assessment may be done subjectively or be data driven. Subjective methods relate to practices where companies evaluate suppliers through personal judgements, for example by asking various departments about their experiences with the supplier, data-driven methods attempt to quantify the supplier's performance. In practice, the following tools and techniques are used for supplier assessment:

- Supplier evaluation. This method is used for those suppliers with whom ongoing business relationships exist. Internal (subjective) perceptions about the suppliers' performance are collected in a structured way. Various stakeholders who have direct experience with this supplier (e.g. quality control, engineering, manufacturing, production planning) are asked to 'rate' the supplier according to a previously agreed limited number of questions. Often it includes questions related to how the respondent perceives the quality and delivery performance, whether the supplier is responsive to questions and problems (i.e. service level) and about the working relationship. Also included is the well-known Net Promoter Score (NPS), which measures, on a 0 to 10 scale how likely it is that this internal customer of the supplier would recommend this supplier to their colleagues. The outcome of the supplier evaluation is communicated with the supplier. In case there are specific issues, the supplier is asked to improve. Supplier evaluation also serves as input for selecting the best performing and most promising suppliers for further collaboration (e.g. framework agreements and/or improvement projects) and deselecting the non-performing suppliers.
- Supplier rating (supplier performance measurement). This requires assessing actual supplier performance in a fact-based manner through measurement of quantitative supplier performance data. It entails measuring the aspects of cost (including price), quality, sustainability and delivery reliability per supplier through a limited number of well-chosen KPIs, with the purpose of following up that the suppliers are delivering according to what contractually has been agreed. The supplier's price history is investigated and compared with that of its competitors. Quality is measured in terms of quality rejection rate, the number of production line stops as a result of defect materials, or by monitoring different sustainability performance indicators. Delivery reliability is measured by means of registration of the number of late (or early) deliveries. This will allow buyers to act upon minor supplier performance disturbances before they become too serious. Supplier rating enables structured quantitative feedback to be given to suppliers to solicit for improvement. This may appear simple, but such systems are very difficult to establish due to the enormous amounts of administrative data which need to be extracted from internal company records. To do this economically, an integrated materials planning system should be in place, which is not always available. Because of this, sometimes buyers ask their suppliers for their delivery and quality performance data and take that as input for supplier ratings. However, this creates some challenges with regard to reliability of the data, because it is in the interest of the supplier, of course, to show good performance.

Based upon supplier evaluation and supplier rating the buyer can give feedback to suppliers on their performance and, if necessary, ask for improvement. Some buyers share a formal request for corrective actions and, apart from following up the specific improvement actions for a distance, leave it there. Others discuss the issue in more depth with the supplier and decide to start a joint structured improvement project to act on the performance deviation.

What gets challenged, gets better. At a large Swedish construction company, the mere fact that they started measuring supplier delivery performance and giving clear quantitative feedback to their suppliers for construction materials resulted in a 12 per cent increase in delivery precision against the baseline in just over one year. In addition, the differences between construction materials suppliers narrowed significantly. All this had a very positive impact on the project planning, execution and delivery of the company. It is hardly necessary to state, but once corrective actions do not deliver the required performance improvements over time, the buyer might decide to escalate the situation and phase out the supplier.

- Supplier audit/supplier visit. This method is aimed at assessing (periodically) the quality of the supplier's operational processes (i.e. operations, quality, delivery), management and organization in a *structured* (i.e. based upon formalized tools and templates) and *direct* way (including supplier visit). Faults and weaknesses are reported and discussed with the supplier after the audit/visit. Measures for improvement are negotiated and established. During a subsequent supplier visit it is assessed to what extent progress has been made against the targets defined.

Table 10.1 indicates the major differences between supplier auditing and supplier rating. Supplier rating is used to judge existing suppliers. It has a more quantitative focus than auditing techniques.

Table 10.1 Major differences between supplier auditing and supplier rating

Aspect	Supplier auditing	Supplier rating
Orientation	Focus on future	Based on historical data
Application	New and current suppliers	Current suppliers
Nature	Mainly qualitative	Mainly quantitative
Scope	Broad, many aspects	Limited, few aspects
Work	Time consuming	Standard data
Data processing	Subjective, manual	Factual, computerized
Relation with suppliers	Co-operation required	Based on internal administrative data

Cost modelling and the learning curve

Cost modelling is not simple and requires a lot of time and effort. Usually, it is conducted by procurement business analysts. Specialists at the buying company estimate the supplier's unit cost by means of shadow calculations based on the production technology which is currently being used by the supplier. A detailed analysis is made of the supplier's direct and indirect costs: materials consumption, materials prices, storage costs, waste, personnel costs, costs of supervising, overheads, etc. Usually this analysis leads to some interesting insights which then can be discussed with the supplier. Based upon this information, some professional buyers go one step further and conduct a should-cost analysis. Based upon what they consider to be the most advanced state-of-the-art production technology and structure, an estimate is made about what the supplier's cost price of a particular component really should be. The difference the actual and should-cost price then becomes, obviously, the subject of discussion between buyer and supplier.

There is an intensive exchange of ideas on how the should-cost position might be achieved. These discussions frequently result in the supplier having to invest in the existing manufacturing equipment. To compensate, the buyer is often prepared to offer long-term purchasing contracts. The use of cost models and should-cost techniques usually deepens

the relationship between both parties. These cannot, however, be implemented overnight as the supplier needs to develop trust in the other party (and vice versa). The supplier should be convinced that the buyer is not after a next round of cutting into its margin but is actually seeking long-term cost advantages. Of course, both parties should (equally) benefit from the efficiency and cost-improvements gained. The issue of developing trust in buyer–seller relationships actually takes a lot of time!

Memo 10.1 illustrates how to proceed when developing a cost model for purchasing.

Memo 10.1

Developing cost models for procurement

Cost models should provide a clear picture of the total cost of ownership of a purchased component. Since these models require a lot of analysis and much data, these are still not widely used. As experience shows, only some leading-edge companies are applying this technique. However, its popularity will increase steadily in years to come.

In developing cost models a few principles can be used. First, it is important to build cost models not only on cost elements (such as labour and materials) but also around the actual cost drivers. Capturing the cost drivers produces a model that answers the question 'what if?' instead of 'what is?' (Laseter, 1998, p. 37). Examples are production lot sizes, set-up times and labour rates.

Cost models should expose at least three elements: materials purchase prices, the actual acquisition costs that the company incurs in buying the materials, and

the cost of use. Taking copying equipment as an example, it is seen that the purchase price of this type of equipment in general only represents a small part of the total usage cost. Building a cost model for copying machines would then require a detailed breakdown of (a) the actual supplier cost price of the equipment, (b) the company's acquisition costs, (c) the cost related to accessories, maintenance and other services, costs and supply of spare parts, (d) energy costs, etc. Building a cost model for an aluminium die cast product would require a breakdown of the following cost elements: tooling, quality, logistics, purchasing administration, scrap, supplier inventory, supplier overheads, supplier indirect and direct labour, energy consumption and materials costs. In each of these cases these cost elements should be related to the actual cost drivers.



Dynamic cost modelling requires a thorough understanding of the learning curve. The learning curve was originally developed during the 1960s in the US aircraft industry. It was discovered that the cost price per aircraft decreased at a fixed percentage as experience, i.e. the cumulative production volume of a particular type of aircraft, increased. This decrease of costs per unit had nothing to do with effects of scale; the result was to be attributed to the learning effect. The learning effect in general results from the following factors:

- fewer design and engineering costs
- fewer engineering changes (initially required to deal with unforeseen quality and manufacturing problems)
- reduced supervision as experience with production of a particular product grows
- improved efficiency through streamlining the production process
- reduced defects and line reject rates due to defect components during the production process
- (as a rule) increased batch size, which means that less time is spent on resetting machines; the result is reduced production downtime
- (after a while) use of specialized, i.e. improved production equipment
- improved process control: reduced loss of time as a result of emergency measures.

The basic principle of the learning curve is that 'each time the cumulative production volume of a particular item doubles, the average time required to produce that item is

approximately x per cent of the initially required time'. An 80 per cent learning curve means that if the cumulative number of produced goods is doubled, only 80 per cent of the original number of hours are needed to produce one unit (refer to Table 10.2).

Table 10.2 Learning effect results in cost price reduction (example)

Cumulative amount produced	Required time in hours per unit
1,000	20.00
2,000	16.00
4,000	12.80
8,000	10.24
16,000	8.20

These data can also be reproduced graphically; regular graph paper yields a curve (refer to Figure 10.6), while log–log paper produces a straight line (refer to Figure 10.7).

This knowledge is clearly of vital importance to the buyer. Anticipating the supplier's learning experience, they can negotiate price reductions in the future. The learning curve is preferably used in the following situations:

- when it concerns customized components manufactured by a supplier to the customer's specification
- when large amounts of money are involved (so that the costs which must be incurred to apply the technology in question can be recovered)
- when the buyer cannot request competitive quotations because, for example, a considerable investment has to be made in moulds and specific production tooling, which leads the buyer to single sourcing
- when direct labour costs make up an important part of the cost price of the product to be produced.

Figure 10.6 An 80 per cent learning curve on ordinary graph paper

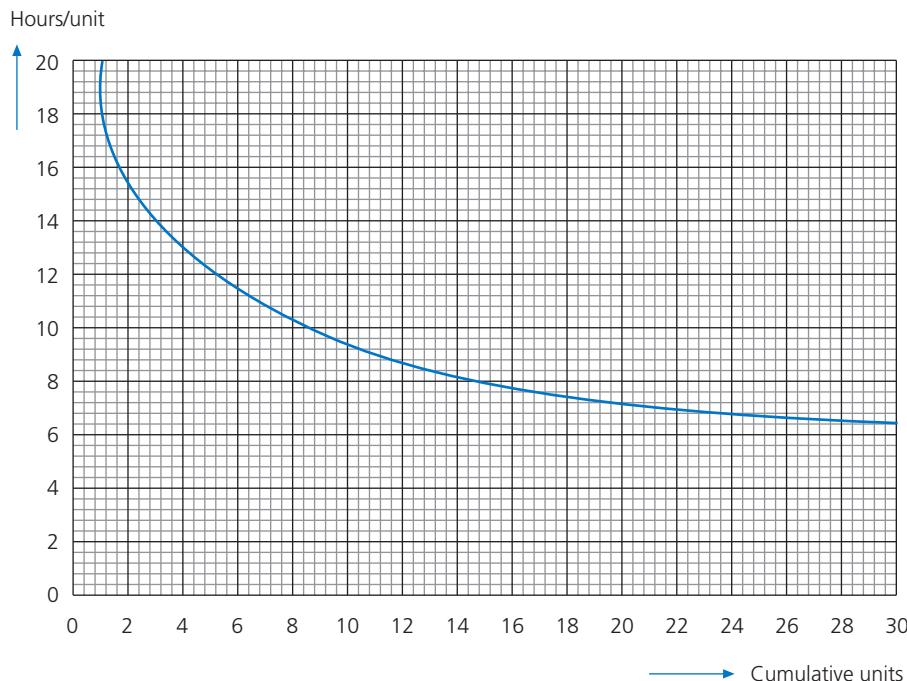
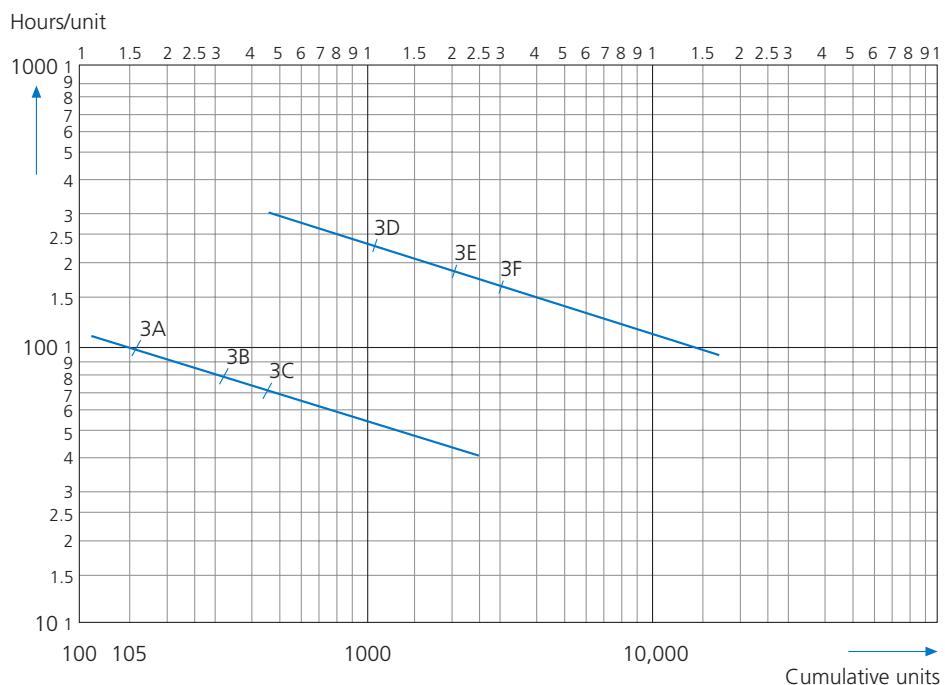


Figure 10.7 Learning curve on log-log paper



In summary, supplier management requires a thorough understanding of supplier assessment techniques, which include both supplier evaluation and auditing and supplier rating, cost modelling techniques and the learning curve. The learning curve illustrates that suppliers may benefit from significant economies of scale. It is the buyer's task to make sure that part of the economies gained are passed on, i.e. are translated into a more competitive price. Sometimes manufacturers decide to keep these benefits for themselves, if they deal with consumers that have no or little buying power. Memo 10.2 illustrates the massive difference between the price and the cost of an Apple iPhone 11.

Implementing the SRM framework: supplier development

Supplier development is all about building strong and deep relationships with suppliers.³ This subject has been discussed by many authors. Repeatedly, some global Japanese manufacturing companies are described as the role models for their assumed collaborative view on supplier relationships. However, one must not be mistaken, since these Japanese companies (including Toyota and Honda) are the most demanding companies a supplier can work with. In line with their *lean* philosophy, these companies are relentlessly working on reducing or eliminating costs and waste throughout their supply chains. The idea behind this is that both parties (buyer and suppliers) work jointly to realize cost savings, improve quality and reduce lead-times.

³Refer to the IKEA case study at the beginning of this chapter for an illustration.

Memo 10.2

Cost breakdown of Apple iPhone 11 Pro Max 64GB

The internet is an important source of information when buyers want to explore the cost breakdown of the products that they buy. Apple has outsourced almost all of its manufacturing to so-called contract manufacturers in low-cost countries. Figure 10.8 provides a picture of the direct cost of an Apple iPhone 11 Pro Max, one of the most expensive iPhones Apple released in 2019. Depending on the storage size, the consumer price of the phone ranges from US\$1099 (64GB) to US\$1449 (256GB). For this cost breakdown the 64GB model priced at US\$1099 when it was introduced will be used.

The direct costs consist of different components that make up the iPhone and the assembly cost. Assembly cost makes up around 4 per cent of the total product costs, which shows the high degree of automation of manufacturing.

The cost breakdown does not reveal Apple's research and development cost or the marketing and distribution cost. These need to be paid from the gross margin (sales price minus manufacturing cost, i.e. US\$608.50). These costs can be estimated as follows. In 2019 Apple's total revenues were US\$260.2 billion. Its research and development expenditure US\$16.2 billion (6.2 per cent) and its selling, general and administrative expenditure US\$18.2 billion (7.0 per cent),⁴ together represented 13.2 per cent of the sales price (i.e. US\$145.07 for the iPhone 11 Pro Max). This would result in a net profit of

US\$463.43 (42.1 per cent) for the iPhone 11 Pro Max (64GB). As most consumers are aware of the large differences between Apple's pricing and cost strategies, this case illustrates Apple's strong brand value, i.e. the value that consumers are willing to pay above the cost price of a product.



Figure 10.8 Materials cost breakdown Apple iPhone 11 Pro Max, 2019

Source: Adapted from www.techinsights.com/blog/apple-iphone-11-pro-max-teardown

Apple iPhone 11 Pro Max	
Cost of selected parts	
Display	\$66.50
Memory	\$69.50
Cameras (Sony)	\$73.50
Processors (Apple)	\$89.50
Mechanical	\$61.00
Battery	\$10.50
Other	\$99.00
Total parts	\$469.50
Assembly (Foxconn)	\$21.00
Total	\$490.50
Margin	\$608.50
US retail price	\$1099.00

What makes these companies different from their Western competitors, is that they take supplier development very seriously. This is shown by the fact that all of these companies have specific supplier support and supplier engineering departments which provide technical assistance to a supplier when needed. If an important supplier does not perform in line with expectations and does not respond properly to performance feedback, what should the procurement manager do? Switch to another supplier that might do better, or stay loyal to the current supplier and support them in their efforts to improve their offering and processes? Following the advice of Thomas Stallkamp (former CPO and CEO of Chrysler Corporation) who once said: 'It is easier to work with a supplier we know that has problems, than with a new supplier we don't know whose problems may be even worse!', many large companies have developed specific programmes that are aimed at improving supplier performance in terms of cost, quality, sustainability and delivery in a consistent and structured way.

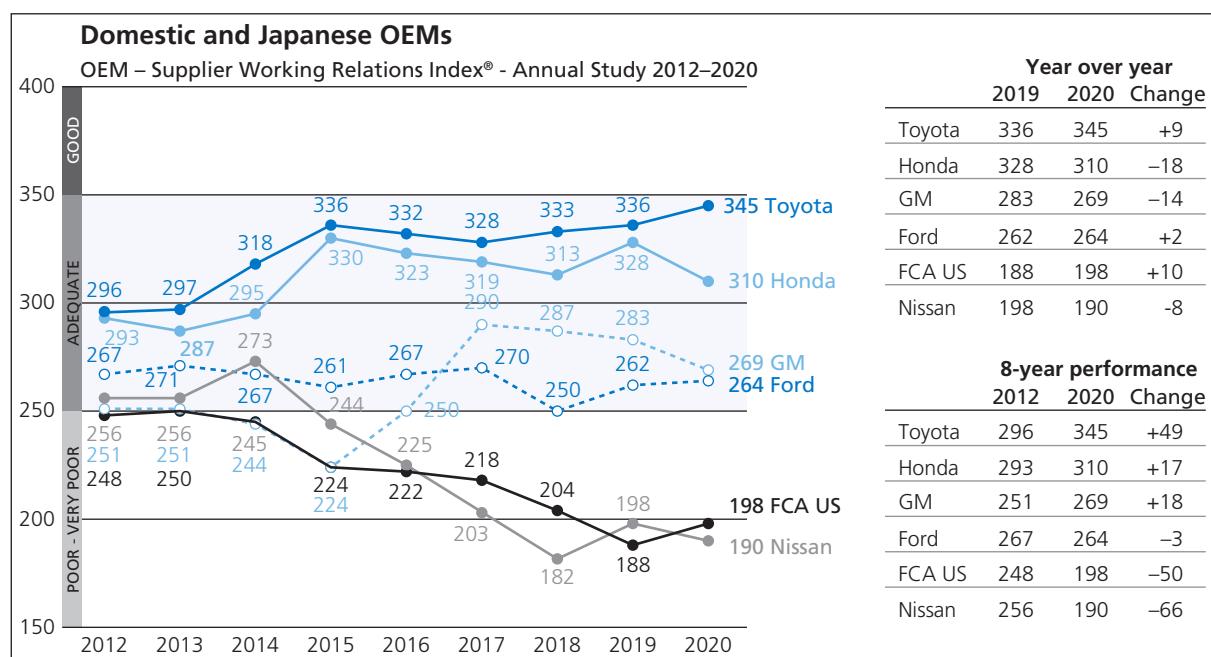
Supplier development can be defined as: the process of working with suppliers on a one-to-one basis to improve their performance capability for the benefit of both organizations.

⁴Refer to Apple's Annual Report 2019.

According to Mike Leenders (1966), who was one of the first academics to write about supplier development, when properly used it can be an 'extremely effective procurement instrument' and therefore it is an area of high relevance for procurement. Figure 10.9 illustrates the quality of supplier relationships among a number of global car manufacturers. Suppliers, apparently, are very positive about their working relations with Toyota and Honda. For a large part this is due to their supplier development practices, which are highly demanding and supporting at the same time.

Figure 10.9 Annual North American Automotive Supplier Working Relations Index (WRI) (2020)

Source: Putre, L. (2020) Which automotive OEM is in the best position for recovery?, Industry Week, June 24, 2020. As retrieved from www.industryweek.com/supply-chain/media-gallery/21134925/which-automotive-oem-is-in-the-best-position-for-recovery



In contrast, look at the scores for Nissan and FCA,⁵ who are at the bottom of the list. It is illustrative that these manufacturers over the years suffered the most from quality problems and supplier delivery problems, which affected their long-term profitability negatively. Both Honda and Toyota are very advanced in their supplier performance measurement, evaluation and feedback. At the same time, they are very loyal and highly supportive of their suppliers. Over the years they have developed a number of effective supplier development practices, among which:

- Supplier associations: general sharing of information, policies and best-practices among suppliers
- Consulting groups: intensive on-site assistance to suppliers by a team of Toyota experts via workshops and seminars
- Learning groups: on-site sharing of know-how among a small group of suppliers
- Engineering support: direct on-site assistance to suppliers to support them with solving quality and delivery problems

⁵FCA Group: includes Abarth, Alfa Romeo, Chrysler, Dodge, Fiat, Fiat Professional, Jeep, Lancia, Ram and Maserati.

- Procurement support and development: staff structurally support suppliers with performance improvement and cost reduction programmes
- Supplier training programs (e.g. LEAN, Sustainability, Design thinking)
- Executive loan programme: Honda engineers and managers are allocated for a short period of time to help a supplier manage its operations.

Fastfood restaurant McDonald's is a similar example from another industry. It is known again, for being highly supporting and demanding on the suppliers that it works with. It has advanced supplier performance management in place (i.e. a monthly metrics report, formal quarterly business reviews). It supports and stimulates suppliers through quarterly site visits, supplier advisory councils, supplier events, supplier awards, joint development initiatives, social gatherings and peer-to-peer coaching among suppliers. McDonald's is aware that if it wants to expand globally, it should allow its key suppliers to grow jointly with it. McDonald's actually considers its key suppliers, though independent and autonomous companies, as a logical extension of its own company, and wants to treat them as if they were part of this company.

Selecting suppliers for supplier development depends on different factors. First, it depends on the category management strategy that defines who the key suppliers are and what performance is expected from them. Second, there should be significant potential for performance improvement. Third, it depends on the complexity of the work involved and timespan within which concrete results can be obtained (is it an easy job or not?). Finally, it depends on the supplier's attitude: are they willing to participate or not? Supplier development takes lot of time and resources, and when the benefits don't outweigh the costs, it's not worth all the effort. Obviously, supplier development will only work when each party shares some benefits of the exercise. Otherwise, this will lead to a lack of motivation for such initiatives in the future.

Of course, it is not necessary to develop deep, collaborative relationships with all suppliers a company does business with. Sourcing strategies are usually different for different categories. In order to develop differentiated supplier relationship management strategies, some companies have segmented their suppliers into distinct **supplier segments**.

The aim of supplier segmentation is to identify where and how a company can best focus its supplier relationship management efforts to maximize the potential business impact of different suppliers. There is no one best approach to segment suppliers, so procurement managers can tailor their approach to the specific requirements of their company and supply base. Segments may, for example, include: (1) strategic partners, (2) performance partners, (3) preferred suppliers and (4) competitive suppliers. The supplier pyramid seems to be the most preferred way to visualize and present the different supplier segments. A supplier pyramid typically has three or four tiers, depending on how the suppliers are split into different segments. Moving up the pyramid, the (potential) business impact of suppliers increases and the number of suppliers in that segment decreases.

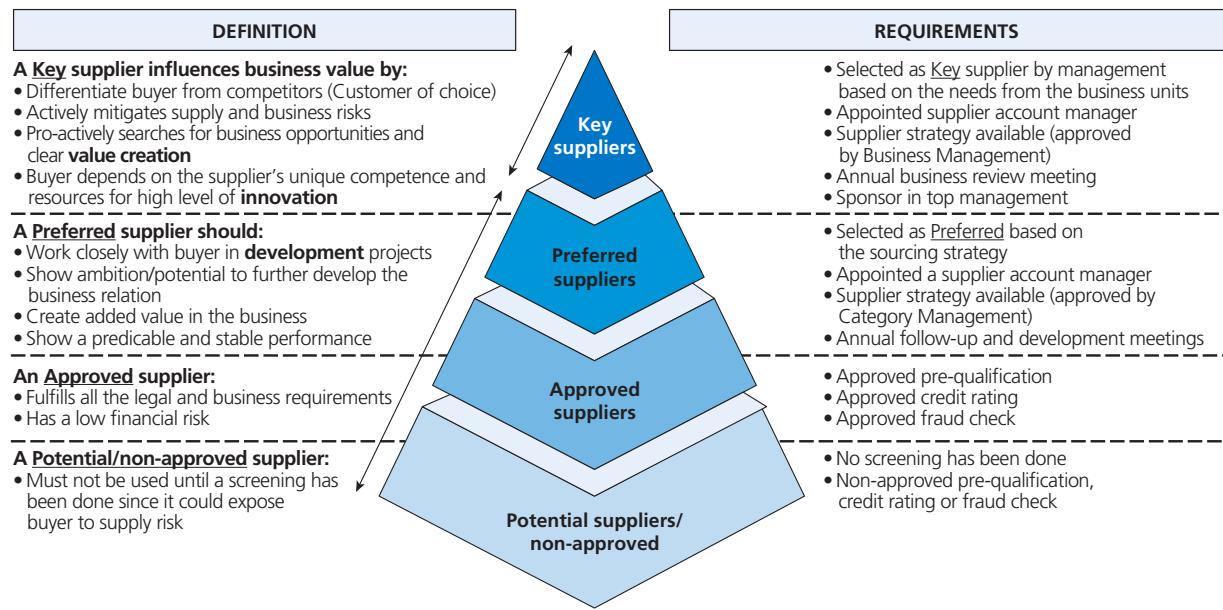
Skanska, the global construction firm based in Sweden, may serve as an example here. As part of their Preferred Supplier Program, Skanska differentiates between (1) key suppliers, (2) preferred suppliers, (3) approved suppliers and (4) potential/non-approved suppliers (refer to Figure 10.10). Based on this segmentation, Skanska has developed different ways of working for each supplier segment (Elfving and Ballard, 2011, 2013), which is necessary as Skanska intends to spend most of its scarce supplier development resources on those suppliers that are most critical and valuable to it.

In general, suppliers have become quite sophisticated in developing tailored marketing and customer strategies, which result from specific marketing analyses and portfolio techniques.

Supplier segments

Suppliers may be classified into different segments, depending on the value and risk which they represent to the company. Segments may include: (1) strategic partners, (2) performance partners, (3) preferred suppliers and (4) competitive suppliers.

Figure 10.10 Supplier segmentation: a prerequisite for supplier development



Customer of choice

Such a customer receives preferential treatment and suppliers are prepared to invest deeply in the relationship, resulting in a better product and service, allowing the customer company to make a difference in its end-user and customer markets, irrespective of the business cycle.

Supplier satisfaction survey

Periodically, the buyer invites suppliers through a standardized survey to share their perception on the quality of the business relationship and come up with suggestions for improvement.

The best customers and customers with the best development potential get most of the attention and most of the supplier's resources. This is why it is necessary for buyers to position their company as a **customer of choice** to their supplier markets. The idea here is to promote the company to strategic suppliers as an attractive business partner. In doing so, several actions are to be considered.

First, procurement professionals need to provide their suppliers consistently with honest and clear feedback on their performance. Supplier performance reports need to be communicated and discussed regularly in order to develop the right measures to improve on this. When buyers engage in this type of discussion, it will appear that a lot of improvement measures will relate to their own organization, as any supplier performs as well as their client enables them to do.

Second, the buyer is recommended to check how satisfied a supplier is with its relationship with the buyer's organization. Does the supplier really value the relationship? Or do they feel that the relationship is actually one-way traffic? To find out a limited number of companies have started to conduct periodic **supplier satisfaction surveys**. This seems logical, since effective B2B collaboration requires the best efforts of both the seller and the buyer organizations involved. Based upon specific supplier feedback, the company may need to improve its administrative procedures (payment procedures in particular), its internal operations and/or its attitude and behaviour. Suppliers may represent an important source of information since they also deal with the company's competitors and, therefore, they are able to make a fair comparison between their procurement practices.

Today, supplier performance measurement is still not widespread in manufacturing and service industries, which is where the traditional procurement orientation mostly dominates. Even rarer are companies that measure supplier satisfaction. That is a pity since it means that supplier resources for a large part remain untapped. Here, procurement theory is clearly ahead of practice.

Memo 10.3 looks at how deep relationships between business partners may be developed.

Memo 10.3

Building deep relationships

Developing a close, collaborative relationship between business partners requires that expectations between all stakeholders involved are made explicit. Next, the actual experiences from both partners in doing business together need to be assessed. Part of this can be done by setting up advanced supplier performance reports. The other part needs to come from suppliers, who should be invited to express their concerns and ideas as well. Ideas for improving future collaboration could be exchanged by asking the following questions:

- Why are both parties in business together?
- How do they value the relationship during the past years?
- How do they value the current relationship?
- What would they expect from their future business relationship?

Answering these questions requires a multilevel communication structure, ranging from top management meetings up to more operational meetings with the staff operating on the shop floor.

Building up collaborative relationships takes many years and a lot of effort. Starting from the beginning, business partners will go through several consecutive stages to develop from a traditional, arm's-length relationship to a more collaborative relationship. Figure 10.11 illustrates what it takes from both partners to go down this route.



These initiatives should enable the buying company to acquire a position of 'customer of choice'. For such a customer, suppliers are prepared to invest extra in the relationship resulting in a better product and service, allowing the customer company to make a difference in its end-user and customer markets, irrespective of the business cycle. Acquiring such a status requires procurement professionals to look at their own company and activities through their suppliers' eyes, an exercise that generally is not aligned with the nature and character of the buying job and for which in many cases insufficient time is made available.



Figure 10.11 The supplier-partnering hierarchy

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Summary

Supplier relationship management (SRM) is built around the idea that suppliers are an important source of competitive advantage. As companies have outsourced a large part of their business processes during the past decades, they have become very dependent on their suppliers. Those companies that are able to engage their suppliers better than their competitors will definitely have an advantage in their competitive arena. However, developing such advantage is not an easy task. It puts procurement on the firing line as procurement should consistently drive better performance from their suppliers. That is what this chapter is about.

The SRM framework explains that four stages are to be identified when turning suppliers into a source of competitive advantage: Control, Manage, Develop and Innovate. Control assumes that the procurement organization works with a clear mandate and well-defined procurement processes and procedures. It is important that all of these procedures have management support and are endorsed throughout the company. Manage means that the procurement organization frequently reports on supply base performance and it engages in a dialogue with the suppliers on how they could and should improve their performance. Develop intends to improve the supplier relationship further. Here the procurement organization mobilizes active support from its technical engineers to help the (often smaller) suppliers sort out operational problems and issues. At the same time they listen carefully to suppliers and help them to eliminate perceived roadblocks in the buyer's organization. Having arrived at this stage suppliers are capable of entering into the final stage, i.e. Innovate. Here suppliers will take an active role in helping the company to speed up new product development and innovation. In doing so procurement professionals need to have a good understanding of modern quality management techniques. More particularly, they should understand the role and importance of supplier quality assurance that aims at getting zero defects from suppliers. Next, in order to improve the supplier's value proposition, they should have a good understanding of supplier assessment techniques (subjective as well as data-driven), cost models and learning curve effects.

Through improving the performance of their suppliers, companies can improve their own performance in the relationship with their customers. Therefore, differentiated strategies need to be developed for different supplier segments. Suppliers can be segmented into key suppliers, preferred suppliers, approved suppliers and non-approved suppliers. For each type of supplier, different strategies are put in place. Buyers should be aware that suppliers pursue different strategies towards their customers. Usually, the best ideas and resources are made available to the best customers. Therefore, buyers need to position their company through their procurement strategies as a customer of choice vis-à-vis their most strategic suppliers. To achieve such a position, procurement managers can actively solicit ideas for improvement from their suppliers, provide technical support to their suppliers and conduct periodic supplier satisfaction surveys. The information which is derived from these kinds of activities will enable buyers to build more collaborative and constructive relationships with their key suppliers.

Assignments

- 10.1** To be able to build long-term collaborative relationships, the supplier needs to have a sound financial basis. Apart from financial reports, what signals would indicate that things are going wrong with the supplier and that its continuity may be at stake? Give a few examples.
- 10.2** Many large manufacturers have tried to develop partnership relationships with their key suppliers. How would you define a partnership relationship? Do you think a true partnership approach is feasible in the manufacturing industry? What conditions would buyers and suppliers need to meet in order to be able to develop effective partnership relationships?
- 10.3** A supplier of components announces that it has to raise its prices by 10 per cent because it has lost a major customer. It states that it is now forced to spread its fixed cost across a smaller production volume. What costing method does this supplier use? Assuming that this supplier is important to you, how would you deal with the supplier's request? What steps would you take?
- 10.4** In this chapter, supplier rating was named as one of the methods that can be used to measure supplier performance. Delivery reliability and quality performance of the supplier are two aspects of supplier rating. How can a supplier's delivery reliability and quality performance be measured in a practical way? What KPIs would you suggest?
- 10.5** Last year you purchased 100 units of product X from a supplier at €50.00 each. You estimate that you will purchase 300 units of this product from the same supplier this year. You are now preparing for the price discussion with the supplier. What price are you willing to pay, assuming that an 80 per cent learning curve applies to this product?

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11 Innovation sourcing

Learning objectives

After studying this chapter you should understand the following:

- The differences between ‘closed innovation’ and ‘open innovation’.
- The role of suppliers in open innovation.
- The challenges of involving procurement in design and new product development.
- The challenges of involving suppliers in design and new product development.
- How to benefit from supplier enabled innovation.

Introduction

Innovation is an important driver for competitive advantage. Innovation can be defined as the process by which value is created by the application of knowledge in a way that didn’t happen before (Iske, 2016). The use of supplier knowledge during the innovation process can be one such way. By the early 1980s, Ford had transformed itself from a vertically integrated company with 70 per cent self-sufficiency to one that outsourced 70 per cent to suppliers. Ford initially feared it would lose its technological know-how and innovation capacity to its suppliers, but instead it turned out that suppliers had much greater and deeper knowledge, could innovate faster and better, and even helped mitigate the risks and costs of innovation. Most automakers have since followed suit and in the auto industry there is a strong correlation between the extent to which a company outsources innovation and development activities, its innovation capacity and profitability (Quinn, 2000).

This correlation was recently confirmed by McKinsey (Gutierrez et al., 2020). Based on a survey of 105 companies they found that companies that innovate regularly and systematically with suppliers see a 5 to 10 per cent reduction in their costs of goods sold (COGS), 7 to 10 per cent growth in revenue and see their EBIT (Earnings Before Interest and Taxes) grow by 4.9 per cent (over a five-year period). Some examples of these leading companies are Apple, Amazon, Unilever, Philips, Zara, McDonald’s, Cisco, H&M and BMW.

Steve Jobs, the founder of Apple, told *Fortune Magazine* in 1998 that innovation had nothing to do with how many dollars you put into R&D (Kirkpatrick, 1998). He was more focused on involving partners in finding solutions to specific issues, rather

than giving detailed orders to suppliers to innovate something for Apple. The suppliers involved in the introduction of the iPod, iPhone or iPad were not coincidentally at the right place at the right time. Rather the success of these Apple products was the result of careful partner selection. Next, it was all about creating the right climate for innovation. So, ground-breaking innovation is possible if you are willing to experiment with new approaches to setting specifications (e.g. early involvement of suppliers in specification setting, sometimes even in the fuzzy front end of innovation), selecting the right partners for innovation (e.g. scouting and selection of innovative suppliers and start-ups based on their potential future value instead of their past performance), and the willingness to work with innovative contract forms (e.g. so-called performance and/or outcome based contracts) that allow suppliers to feel like full members of the innovation team. However, this is easier said than done...

Case study

Boeing Dreamliner 787

When Boeing presented plans for its highly innovative Dreamliner 787, it promised customers an aircraft that would set new standards for passenger experience and fuel- and cost-efficiency. Next, it promised a record time-to-market of only four years. Market introduction was scheduled on the symbolic date 7/8/2007, and the first aircraft ready to be taken into full service was promised for May 2008. To deliver upon this promise, Boeing drastically changed its supply chain strategy. Coming from a 'do everything yourself' strategy (Make), it turned to extensive outsourcing of technology development, detailed engineering and even production to subcontractors and its suppliers (Buy).

Despite all good intentions, namely shortening development time from six to four years and lower development costs from US\$10 to 6 billion, it became apparent at the beginning of the project that its ambitions could not be fulfilled. Poor execution of the new supply chain strategy resulted in multiple disruptions in the supply chain. For example, procurement had quickly sourced globally a large number of new suppliers that were to develop new components at highly competitive prices. It turned out that some of these suppliers were unable to deliver their components in time, as they had difficulty in complying with the required high-quality standards in aerospace. At one point in time, Boeing had a major shortage of simple fasteners (i.e. nuts and bolts). As a result, production engineers had to turn to local hardware stores to buy all the fasteners it could find in order to be able to continue production.

In the end, all the supply chain disruptions led to record delays and budget overruns. The first aircraft was delivered to its customer in 2011, instead of 2008 as promised. The project resulted in extra cost of an estimated US\$10 billion including penalties for late delivery of the new aircraft (Denning, 2013 supplemented with various internet sources).

The Boeing case shows that managing innovating with suppliers can be difficult and complex, particularly if procurement and supply chain management processes are not yet geared to extensive outsourcing, as was the case of Boeing. Despite the good intentions of all parties involved (e.g. buyers, suppliers, sellers, customers), failures are lurking due to the lack of correct information, a lack of transparency, mutual distrust between parties, the inability to collaborate, cultural differences and contracts with the wrong incentives.

When done properly, working closely together with suppliers instead of at arm's length in new product development may not only result in considerable lead-time reduction but also to important cost benefits. If suppliers are involved in the product design at an early stage, they can make suggestions about simplification of the design and substitution of materials with components that are easier to process, for example.

This chapter addresses the importance of new product development in companies. The role assigned to procurement in this context is described and the contribution that procurement can or should make to the company's innovation agenda is discussed

extensively. This chapter explains that innovation sourcing, i.e. involving suppliers in new product development, has far-reaching consequences for the procurement organization.

Procurement and innovation

Today, companies innovate in a totally different way than in the late 1990s. An example is Philips with its NatLab. This world-famous research and development centre, which is located at Eindhoven, the Netherlands, was for many decades the source of many innovations, such as the incandescent lamp, the Philishave and the CD and DVD. Traditionally Philips's innovations were created by internal experts and engineers who would use their creativity and experience to develop products and production processes. For reasons of security and confidentiality, their activities were secret and protected against external curiosity, which is why access to the NatLab for visitors was extremely difficult. Visitors had to face strict security regulations and were not able to enter the facilities without special permits. Of the many inventions, only a small number made it to market. The rest were carefully archived and protected by patents against competition.

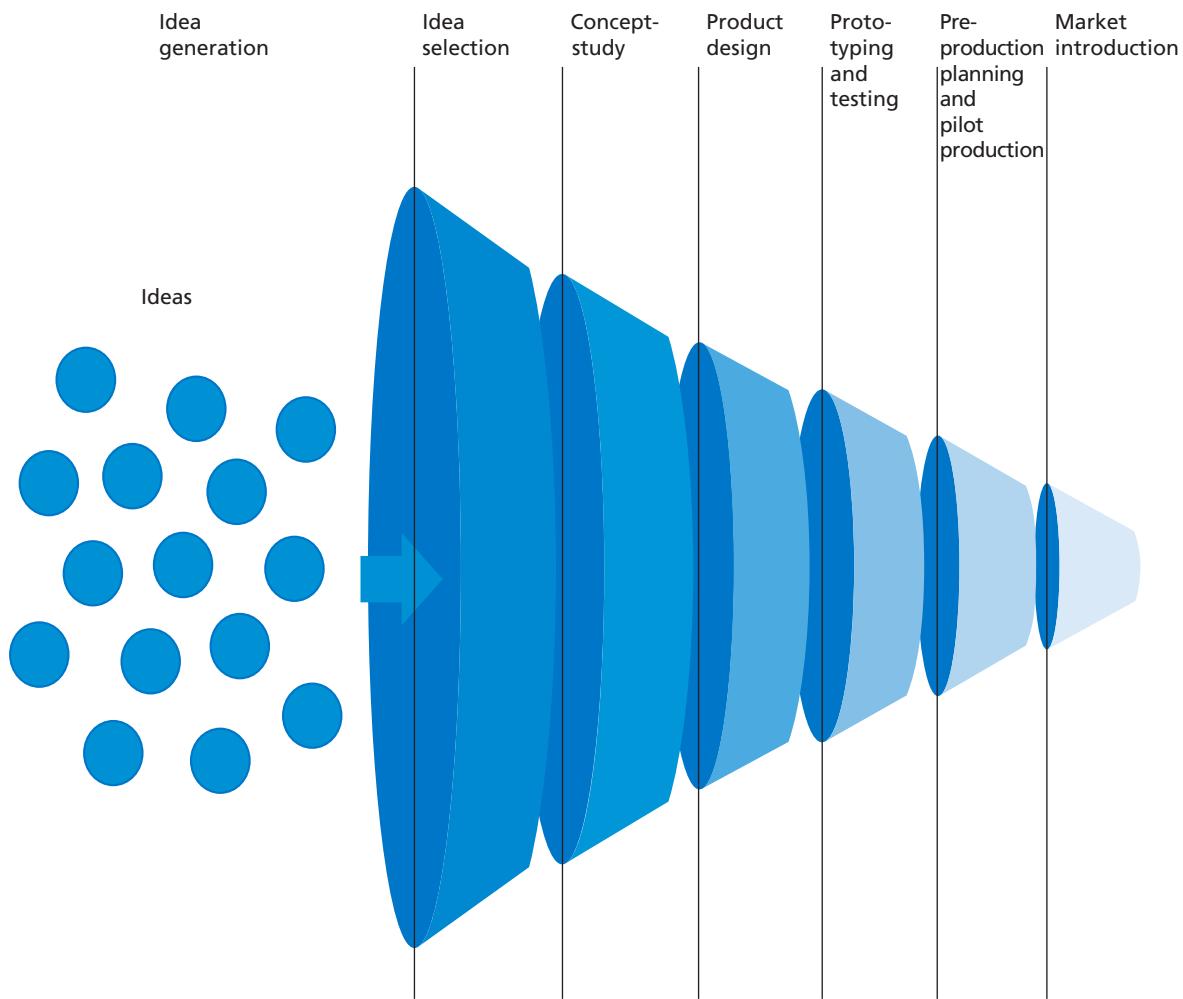
Today, visitors to the High-Tech Campus Eindhoven, the former Philips High Tech Campus, will find the labs of Philips surrounded by a large number of high-tech companies, knowledge institutes and research centres, as well as suppliers. Some are spin-offs, others are attracted by the positive vibe created through the cluster of high-tech companies at the campus. These high-tech companies sometimes join forces, which results in highly innovative products and services: foldable LCD screens and ambient technology have been the result of this. Ambient technology is embedded in new home lighting systems, which automatically adapt to the personal preferences of the house owner. It is also applied in television screens that automatically, through backlight, reflect the colours of television programmes, providing a totally new experience for the viewer. Today, all the patents that have been obtained over many decades are exploited through the Philips Alliance Office. The task of this Alliance Office, which reports directly to the Executive Board, is to exploit and commercialize the patents that are not core to Philips' business, through new business projects in close collaboration with external technology partners. There are rumours that Philips generates more money through this activity than through all its other activities put together. These initiatives illustrate that innovation today cannot be executed effectively without close collaboration with external partners.

In academic literature these developments have been referred to as 'open innovation'. This term was introduced by Chesbrough (2003), who compared **open innovation** with **closed innovation**. These terms reflect different paradigms on how to innovate. Closed innovation implies that companies try to develop new products and processes based on the idea that the company itself has the best possible knowledge and resources for innovation. Basically, the concept is that technical knowledge and new product ideas should not be shared with external parties, because the knowledge and ideas could be abused by business partners. The problem with new product innovation, of course, is that only a few new product ideas make it to market. Even fewer products turn into a commercial success. Therefore, the company should first generate as many ideas as possible. Next, the innovation process should secure a careful screening of the most promising ideas at an early stage of development. By eliminating unsuccessful ideas at an early stage, unnecessary development costs may be prevented. This is the reason why many large companies have developed so-called stage gate processes for innovation (refer to Figure 11.1).

Open innovation The purpose of open innovation is to create close collaboration on research and development, new product design and development and market introduction with parties that share the company's business interests in such collaboration. It is based on the idea that the world outside the company probably has the best knowledge and resources for innovation.

Closed innovation Closed innovation implies that companies try to develop new products and processes based on the idea that the company itself has the best possible knowledge and resources for innovation.

Figure 11.1 The innovation funnel: innovation managed as a process marked with stage gates



New ideas are developed according to a formal procedure which identifies different stages in the new product development process, marked by so-called 'toll gates'. Each toll gate results in a decision document, which is reported to and discussed by a high-level innovation steering committee. This committee decides whether the project should be continued and what resources will be made available for it. This explains why innovation takes so much time and effort in companies. Since the company's resources are only limited, choices need to be made. It is impossible to continue with all projects. As a result of the limited number of projects that can be funded, the number of new products introduced on the market is limited. Another problem is that the internal culture of companies represents a major barrier to breakthrough ideas. As a result, the company may miss important market opportunities. An example here is IBM, where at the beginning of the 1980s conservatism stood in the way of developing the PC. IBM engineers, who were experts in developing mainframe computers and minicomputers, were of the opinion that IBM should not be getting involved in developing a small type of computer that only had a small processing capacity. Nevertheless, a visionary board member approved the project but stipulated to have the PC developed at a remote location in high secrecy. This

example illustrates just a few of the problems that companies may come across when trying to innovate on the basis of the 'closed innovation' paradigm.

The knowledge and expertise that are needed for new product development today are so vast and varied that they can hardly be found within one corporation anymore. The mobile telephone serves as an example. In only a few years this product has developed from just a telephone into a smartphone that allows you to surf the internet, interact with your social networks, buy your favourite products online, make pictures and watch movies and much more. Developing and manufacturing this type of device requires knowledge and expertise that need to be obtained from many external partners and experts.

Another challenge that must be faced when developing this type of product effectively is the massive investment required. This investment can barely be incurred by just one company. This is also true for the pharmaceutical industry. According to Pfizer, it required an investment of over €2 billion to develop, test, register and market the BioNTech/Pfizer COVID-19 vaccine. In general, the average economic lifetime of pharmaceutical products becomes less and less. For the COVID-19 vaccine it might be even shorter, given the speed with which the virus is mutating into new variants. This implies that the massive investment in new product development needs to be depreciated in a short period of time, which is why even large pharmaceutical companies look for opportunities to share these investments with external business partners on a gain and risk-sharing basis (e.g. BioNTech and Pfizer).

Innovation projects may lead to totally new forms of collaboration between firms, so-called ecosystems, which may result in new business ventures, technology alliances and spin-outs. They may also result in totally new forms of collaboration with suppliers, who more than ever are involved early on in new product development. Such collaboration is characteristic of the open innovation paradigm. Its purpose is to create close collaboration on R&D, new product design and development and market introduction with parties that share the same business interests.

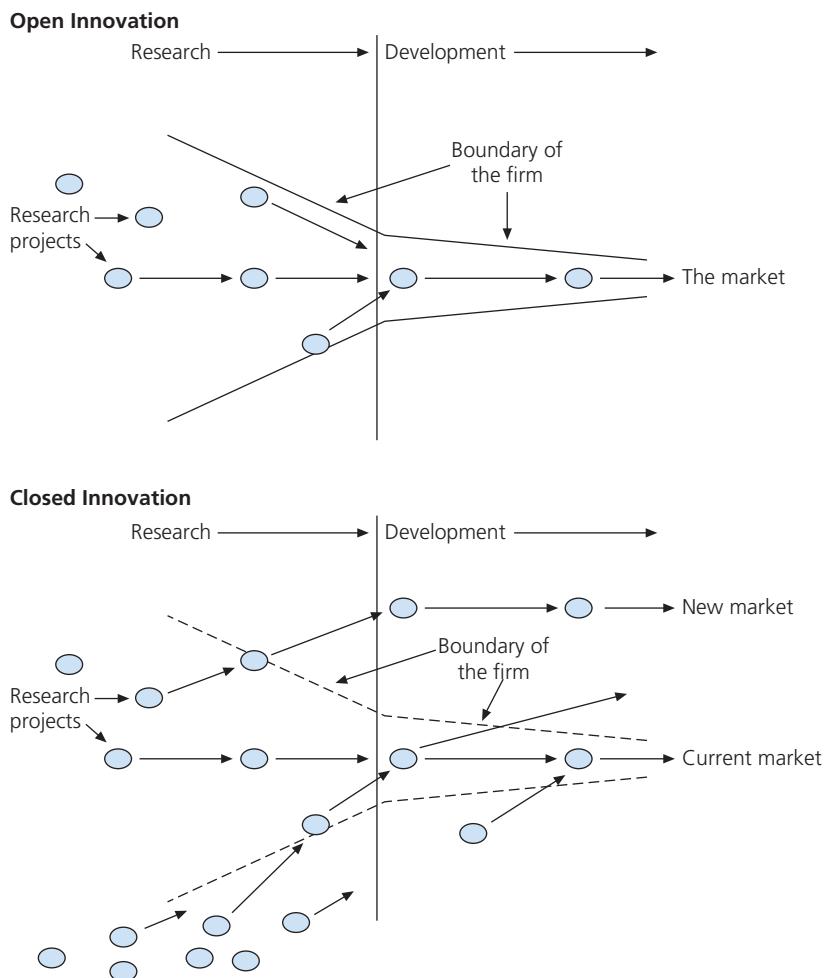
Figure 11.2 illustrates the differences between closed and open innovation.

The role of suppliers in new product development

In many industries innovations are generated not so much by manufacturers as by their suppliers. The automotive industry may serve as an illustration. Innovations in fuel injection (Bosch), sun protection and security glass (Saint Gobain), retractable roofs (Inalfa), car seats (Lear), tyre pressure sensors (Michelin), navigation (TomTom) and airbags (Autoliv) came from suppliers. Therefore, the issue of how to mobilize the innovation potential of suppliers is of crucial importance for large manufacturers. These companies need to involve their suppliers more closely in product and process innovation. This, however, is far from simple and it will not always, as was demonstrated in the Boeing case, lead to success. The results, reported from academic research on early supplier involvement (ESI), are controversial. The study reported by Ragatz et al. (1997) showed that indeed ESI in new product development resulted in shorter development lead-times, higher product quality and a shorter time-to-market. However, other studies reported that involving suppliers early leads to higher development cost, higher product cost, delayed market introduction and discussions on intellectual property (IP).

Figure 11.2 Closed versus open innovation

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Based on our own research (Van Echtelt et al., 2008; Wynstra et al., 1999), we conclude that involving suppliers in new product development is a far from simple matter. The conditions for successful technological exchange and collaboration are not always met by the partners involved. Technological collaboration itself may lead to large resistance among the research and development staff involved from both parties. A prerequisite for customer organization is a good collaboration between research and development, product development, production and procurement. The idea is that companies are only able to collaborate successfully with suppliers if the relevant disciplines involved internally are able to collaborate. This type of cross-functional collaboration within companies is not always present. Other conditions to be met are that professional project management should be in place. Systems compatibility should be secured to enable technical information to be exchanged quickly and efficiently. Inter-system operability is often underestimated by both partners and is a source of significant problems in daily operations and communication. Internal research and development specialists often resist co-operating closely with external suppliers, simply because they fear for their jobs. If future development work is to be done by suppliers, what will remain left for these engineers? Conflicts around IP may further impede the intended collaboration. These are just a few of the problems that we encountered.

The supplier side may underestimate the research and development potential that is needed to support the customer's new product development processes. An efficient producer is not always a professional developer of products, and vice versa. In many cases a lot of knowledge and expertise need to be transferred from the customer to the supplier, which takes time and effort. Another challenge is the question of how to reward the supplier for its development efforts. We have witnessed many times the situation where a specific supplier has made great efforts to support its counterpart with their ideas and activities, even to the point of providing the prospective customer with a prototype of the new components, based on their own cost. Then, a buyer arrives on the scene who asks for different bids from different competitors. When this happens, the incumbent supplier would, of course, feel betrayed because they had done all the work and had not been paid for it. Such practices do not particularly help in fostering trustful long-term relationships with technology suppliers.

When discussing the benefits of early supplier involvement, the distinction needs to be made between short-term and long-term benefits. Short-term benefits may relate to better product quality, lower product cost, shorter development time and lower development cost. These benefits may be generated by applying specialist product and technology knowledge which is provided by the supplier. Long-term benefits may result from joint research programmes on new technologies, aligning technology strategies and roadmaps, and the ability to work with these technology suppliers on a gain and risk-sharing basis. When companies are able to do so, totally new product concepts may emerge. As an illustration, Memo 11.1 looks at Senseo Crema, which represented a completely new solution in the Dutch coffee market. This example has been followed by other companies, most particularly by Nespresso.

Memo 11.1

Open innovation in consumer electronics: Senseo Crema

The Senseo coffee concept that was introduced in 2001, resulted from collaborative development by Sara Lee¹ and Philips. Since the coffee market had become saturated in many European countries, Sara Lee was looking for a new product. The company was looking for a concept which was more contemporary and would fit the needs of the European consumer for a high-quality coffee experience. The Italian espresso machines met these needs, but they were laborious, expensive and troublesome to work with. The new concept was designed to overcome these problems and be more efficient and affordable, easy to operate and offer the consumer much better convenience. Since Sara Lee did not have any expertise and experience with the design and manufacturing of coffee machines, its product managers turned to Philips. The idea was to develop a coffee machine that was able to process the innovative Sara Lee coffee pads. These coffee pads,

like tea bags, were easy to remove and would be available in different flavours.



Having produced different prototypes, Philips was able to come up with a reliable design. The machine was introduced to the Dutch market in 2001 and was immediately a great success. After solving some small technical problems, the concept was introduced to other European markets with similar success. However, the success of the Senseo Crema set the stage for the next generation of premium coffee solutions, among which was Nestlé's Nespresso concept. Nespresso provides a premium coffee experience and has, in some countries, overtaken the Senseo coffee concept. Rather than choosing one technology partner for its coffee machines, Nespresso teamed up with a number of global players, such as Krups, DeLonghi, Magimix and Kitchen Aid.

¹Originally the Senseo Crema concept was invented by Douwe Egberts, The Netherlands. This company was later acquired by Sara Lee.

The Senseo project is a good example of a technology breakthrough that would not have been possible without successful collaboration with an external specialist partner. Obviously, the relationship between Sara Lee and Philips goes far beyond the traditional buyer–supplier relationship. Both companies profited from the revenues that were made possible by jointly introducing this new coffee concept.

To overcome these challenges in joint innovation, according to Van Echtelt (2004), buying organizations need to conduct three different types of activities in parallel:

- Strategic management processes. These processes are focused on providing the necessary infrastructure for future technological collaboration with suppliers. The result is that the company has decided which core activities to focus on. For those technologies for which the company wants to rely on suppliers, the most important key technology partners are identified. Hence, the company has a clear picture of which suppliers to involve in new product development projects per technology area. Strategic management processes are aimed at:
 - deciding on make-or-buy questions at the strategic level
 - preselection of potential future technology partners
 - standardization and modularization of product designs
 - evaluating supplier development capabilities and performance.
- Operational management processes. These processes relate to the management of individual development projects. Operational management processes help to decide which suppliers to address for what type of technological questions for a specific project, what suppliers to involve early and late in the project, and what contracts to use in the relationship with the suppliers. Hence, operational management processes are aimed at:
 - deciding on make-or-buy questions at the project level
 - investigating alternative technological solutions for a project and deciding about the best technological option
 - screening and selection of project partners (which are taken from the preferred supplier list)
 - deciding when a supplier will be involved in the project
 - making project specific arrangements with the supplier
 - evaluating supplier proposals and ways of working.
- Collaboration processes. These processes are aimed at how to foster and implement technological collaboration with external partners. These processes may be particularly aimed at:
 - how to work with suppliers in new product development (e.g. based on target costing, open book calculations, time-to-market targets)
 - how to communicate with suppliers at the different management levels between the companies involved
 - how to assess inter-systems compatibility and operability
 - how to evaluate product designs; how to test them based upon functional specifications
 - what contractual agreements to use in technological collaboration. Alternatives here are:
 - **Time and materials contracts.** The supplier is paid for all work hours and materials spent.
 - Amortization of development cost. The supplier's development costs are amortized over the production series which will be produced later.

Time and materials contract Contract in which the buyer agrees to pay the supplier all materials costs and employee hours against predetermined hourly rates and margins for services rendered (identical to cost-reimbursable contract).

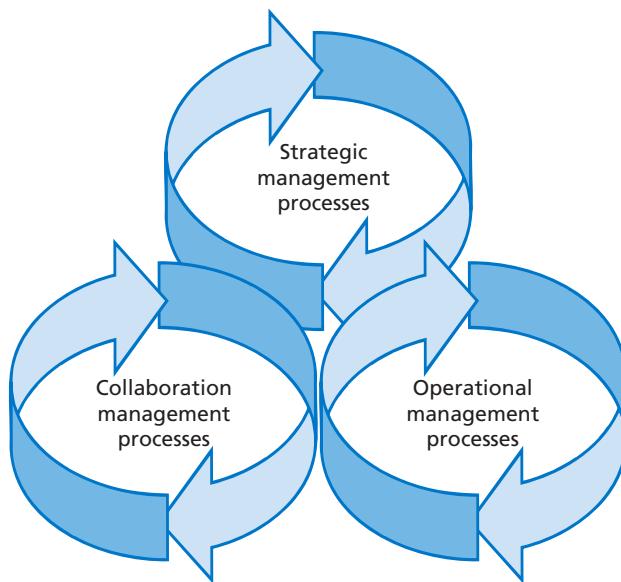
- Gain and risk sharing. The supplier is rewarded with a percentage based on the sales made by the customer after the market introduction.
- how to evaluate and measure the supplier development performance, and how to communicate with the supplier to improve performance.

For a detailed discussion on the subject, we refer to the specialized literature (Van Echtelt, 2004; Van Echtelt et al., 2008). Only when companies have implemented these three types of processes will sufficient conditions be present for successful exchange with suppliers in new product development. In practice it was found that most of these processes were ill-defined or absent.

This explains why technological collaboration is so difficult and troublesome. It also explains the contradictory findings of academic research in this area. Figure 11.3 provides a schematic picture of the discussion. What role procurement professionals may have in the different stages of new product development processes will now be discussed.

Figure 11.3 Integrated new product development: three core processes

Source: Based on Van Echtelt, F.E.A. (2004). New product development: shifting suppliers into gear. PhD dissertation, Eindhoven Center for Innovation Studies (ECIS), Eindhoven University of Technology, the Netherlands Figure 3.1, p. 66.



Procurement and new product development

Depending on the nature of the product and the type of company, the new product development process, starting with conceptualization and ending with introduction to the market, will pass through the following stages (refer also to Figure 11.1):

- Idea generation. In this phase as many new product ideas are generated as possible. New ideas may emerge from customer contacts related to problems that customers experience in using the company's current products. These may also emerge from trends and developments that salespeople perceive in changing customer

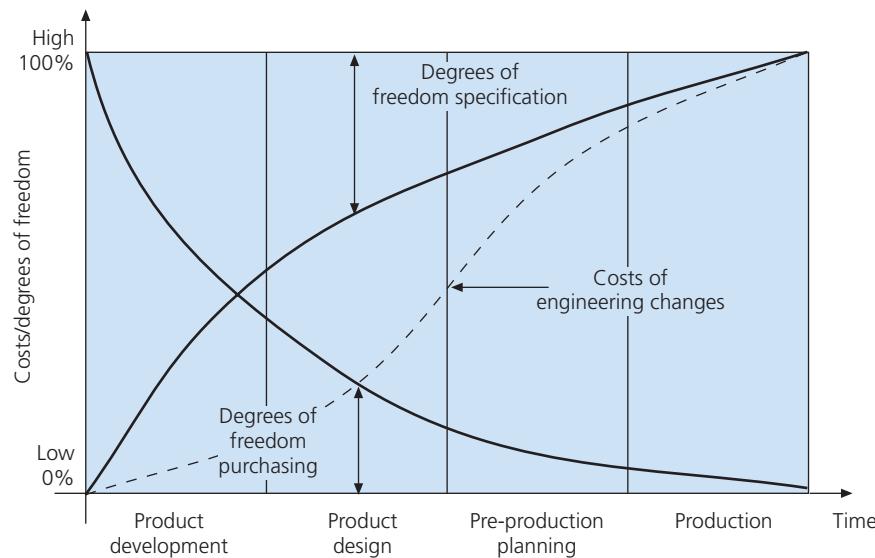
preferences. Finally, new product ideas may emerge from new technologies which, when applied to the current products, may result in new features that allow for more customer convenience.

- Concept study stage. At this stage, the new product idea is translated into a first conceptual design. This conceptual design describes what functionality the product should offer to the intended target market. This stage may be subdivided into several activities, e.g. functional design, pre-study and feasibility study.
- Design stage. The conceptual design is now translated into a technical design. Here, decisions are made about what materials to use, what physical requirements the product needs to meet, the technology that will be used to manufacture the product, etc. At this stage, different product designs may be made that are tested among prospective customers in different working conditions. The testing programmes enable the marketeers to decide what the product is going to look like.
- Product development. In this phase, the product design is translated into a number of prototypes or laboratory models. These models are extensively tested to obtain information about their durability, safety and functionality in different working conditions.
- Preproduction planning. The manufacturability of the product has already been considered during the product design stage. At this stage the production requirements are taken into account. After the prototype has been approved, preparation for production can be started. If it concerns a technically complex product, this phase may take a lot of time, since it may be necessary to purchase new production equipment. The capacity requirements of this new equipment will have to be determined based on (among other things) the market and sales forecasts which have been prepared by the marketing department. Preproduction planning frequently results in a number of preproduction series.
- Pilot production. At this stage, several preproduction series are manufactured. All products are subjected to a thorough investigation and quality inspection. Also products may again be subjected to intensive usage tests to test the durability and sustainability of the new product. In this stage, several engineering changes may be suggested in order to improve the robustness of the product design or allow for more consistent quality. All engineering changes are documented in technical or engineering change orders that need to be administered carefully and, if appropriate, forwarded to suppliers for their approval. When approved by the supplier, these engineering change orders need to be signed off both by the supplier and the company's project leader. At this stage configuration management (i.e. keeping track of all technical changes and making sure that all parties work according to the latest versions of technical drawings) is of extreme importance. Of course, this stage represents a lot of work for buyers, who need to communicate all changes to suppliers and keep track of all possible consequences (including cost changes). This is one of the reasons why it takes so long for a new product to become available for customers. A number of large manufacturers use the number of times that a pilot production sample has to be offered for final approval (i.e. the initial sampling reject rate) as a measure of the supplier's design capability.
- Start of regular production. This is the moment of truth. Is the supplier capable of meeting all requirements? After all the product development problems have been

taken care of, actual production can commence and market introduction will follow. The customer checks the process completely: all products are inspected for quality (i.e. 100 per cent inspection). Later, when no quality defects have been observed, then the level of inspection is reduced and products are inspected on a sample base. The ultimate goal is to reach a situation of direct acceptance of delivered products, i.e. without prior inspection. In this way, the customer avoids the incoming inspection, which is a major source of cost.

It goes without saying that it is possible to refine this sequence of steps depending on the nature of the product and the type of company. As the new product development process advances, the specifications become more rigid and it becomes more difficult to introduce changes. The consequence for procurement is that its possibility to suggest alternative ideas decreases and the costs of technical changes introduced at a later stage in the process increase (refer to Figure 11.4). Therefore, it has been suggested that procurement should be involved early on in the product development process. Next, the extent to which procurement professionals are involved seems equally or even more important. This will be discussed later in the chapter.

Figure 11.4 Procurement's relationship to the new product development process



When developing new products, engineers and developers usually play it safe: their primary interest is in materials and components that solve the technical problem they are faced with. Once a suitable material or manufacturing technology has been found, tested and approved, the willingness to consider any alternatives (in the form of a different material, component or a substitute product from another supplier) will be limited. This is because each alternative ingredient, component or technical change will have to be tested and approved again, which implies not only a lot of work for the engineers involved but also risks. This attitude of the engineer to reducing technical risk may result in certain components being specified in the direction of one particular supplier because

of positive past experiences (refer to Memo 11.2). This puts the buyer in a demanding situation since it is very difficult to negotiate with such a supplier, if any negotiating can be done at all. On the basis of job perception, a buyer will always attempt to have more than one supplier to fall back on. So, for the buyer to be able to go out into the market, the product must preferably be described in terms of functional specifications (rather than in terms of supplier or brand specifications). There exists, therefore, a kind of natural conflict in the way designers and buyers operate (Figure 11.4) which can only be solved by means of cross-functional development teams and a clear description of roles and responsibilities for each stage of the innovation funnel.

Memo 11.2

The value of supplier catalogues

Some suppliers cleverly take advantage of the uncertainty that engineers experience in their design activities. They make it easy for them by providing a catalogue with all the information about the product assortment they carry. Examples include European distributors of technical components who provide electronic, online catalogues to their clients which list all their products. These concern small item, such as switches, condensers, resistors, fasteners, microcontrollers, etc. The most important technical data is presented for all items, together with the item number which can be used to order them. To specify the technical description of these items is, of course, a very labour-intensive task and, for the sake of

convenience, many designers just list the supplier item number from the catalogue on their design. The result is that items described in this way can only be ordered from that specific distributor.



Through this practice some distributors have been able to build captive customer relationships, gaining handsome margins. Online catalogues prove to be very successful. They often go with handy apps from which orders for materials can be placed directly with the distributor. Obviously, this type of relationship and ordering procedure is facilitated by advanced web technology.

Involving buyers and suppliers in new product development may result in considerable savings and, at the same time, more robust product designs. This is why some large manufacturers have initiated co-design relationships with their technology suppliers.

How do large manufacturers communicate with their first-tier suppliers in product development projects? Possibilities are:

- Procurement engineering. A **procurement engineer** is a specialist function in the liaison between the engineering department and the procurement department. Procurement engineers are members of the design teams, where they will evaluate designs against procurement-specific criteria. It is their task to bring in specific supply market knowledge and new suppliers at an early stage of design, resulting in a design to target cost approach.
- Early supplier involvement (ESI). Those suppliers who have proved in the past to be 'best-in-class' are invited to participate in the company's development projects at an early stage. In this way, they are able to criticize future designs, suggest alternative materials, come up with ideas for more efficient manufacturing, etc. at a stage where engineering changes can be made without severe cost consequences.
- Residential engineering. A next step is to co-locate engineers from the supplier on a more or less permanent basis within the organization, in order to work on design or

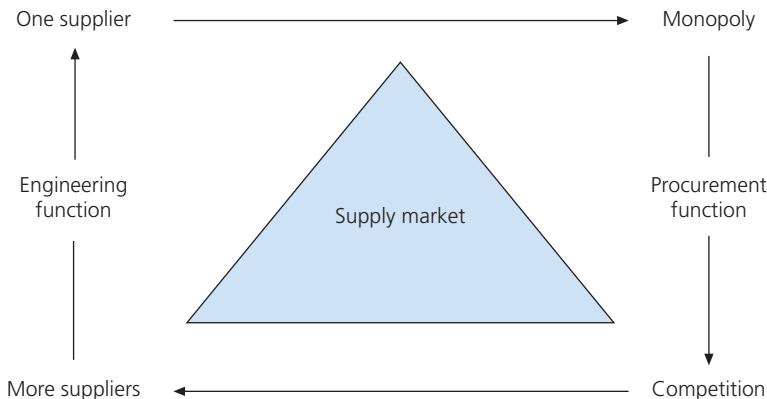
Procurement engineer

A procurement engineer is a specialist function in the liaison between the engineering department and the procurement department.

manufacturing problems which appear during the successive stages of development. Residential engineering also relates to a situation where a large OEM has placed its own engineering specialists at the supplier's premises in order to resolve a variety of technical problems (sometimes referred to as supplier support teams). This is quite common at some large car manufacturers such as Honda and Toyota (refer to, for example, Liker and Choi, 2004).

Buyers are important scouts for any organization when it comes to spotting new technical developments; in their professional capacity, they come into contact with suppliers, products and technologies much more frequently than engineers and developers. Buyers are generalists, while engineers are specialists. Involving buyers in development processes at an early stage can result in the contribution of new knowledge and a better understanding of construction, suitable materials, suppliers, and also the early introduction of supplier knowledge. Practice has shown that ESI can result in considerable cost reductions and product improvements (refer to Figure 11.5).

Figure 11.5 Interaction between procurement and engineering activities



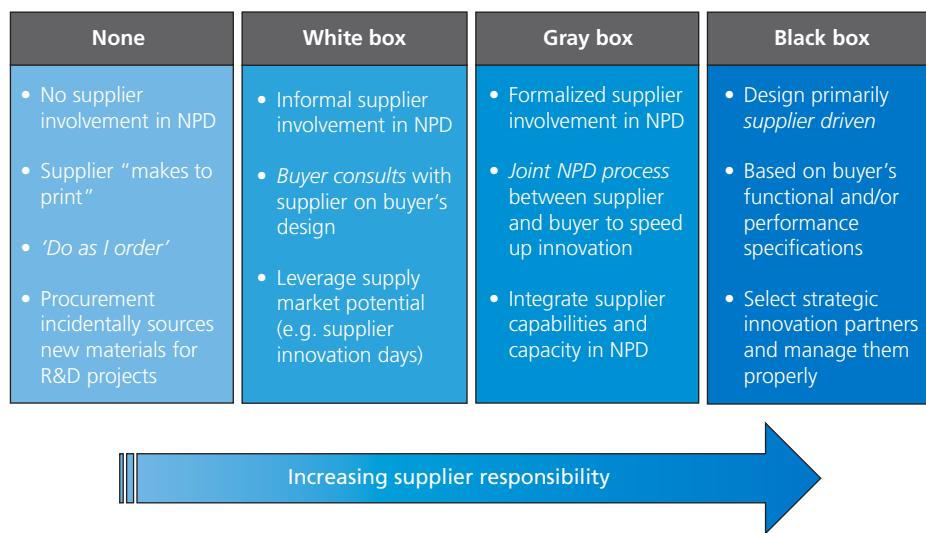
Development projects require careful project management. Targets on design-to-cost and time-to-market need to be carefully translated into detailed action plans and cost budgets. Ideally, the project planning for a new product development project will identify at what time suppliers will be involved in the project. Memo 11.3 discusses the Supplier Involvement Portfolio, based upon the degree of design responsibility held by the supplier and development risk (Wynstra & Ten Pierick, 2000). Based upon these two criteria, four supplier integration strategies can be pursued: strategic development, critical development, arm's-length development and routine development. The authors conclude that it is better to speak about timely supplier involvement, rather than ESI, as only very few suppliers should be involved early in the new product development process.

This is further confirmed by a recent study conducted by Suurmond, Wynstra and Dul (2020) which aims to answer the question: what is the effect of Early Supplier Involvement (ESI) on New Product Development (NPD) performance? The results of their meta-analysis based on 11,420 observations from 51 studies on ESI showed *no* significant effects! In other words, earlier involvement does not lead to better NPD performance as measured on efficiency (e.g. speed of the development process) and effectiveness (e.g. new product quality). Extensive supplier involvement, however, did show positive effects on both NPD efficiency and effectiveness. The extent of supplier

involvement seems to be the key to NPD performance and can vary between none (do as I order), white box buyer (consult supplier on own design), grey box (joint NPD process) and black box design (primarily supplier driven) (refer to Figure 11.6). Engaging suppliers early should only be done in cases where it makes sense (refer to Memo 11.3).

Figure 11.6 How to involve suppliers in new product development

Source: Adaptation based on Petersen, K.J., Handfield, R.B. and Ragatz, G.L. (2020) Supplier integration into new product development: coordinating product, process and supply chain design, Journal of Operations Management, 23 (3-4), pp. 371–388.



Memo 11.3

The supplier involvement portfolio²

The objective of the supplier involvement portfolio is to provide guidance for setting priorities when involving suppliers in new product development. It helps companies to mobilize supplier expertise in the best possible way. As not all suppliers are equally important, only very few need to be engaged early. Other suppliers may be involved later, whereas most of the suppliers will be involved when the product design has been fully tested and is frozen. The portfolio distinguishes between four types of supplier involvement based upon two variables: (1) the degree of responsibility for product development that is contracted out to the supplier, or in other words the extent of supplier involvement in NPD; and (2) the development risk involved. Based upon their specific capability and capacity, suppliers may assume responsibility for new product development in four ways:

- 1 Functional (or performance) specifications.³ Based upon functional specifications for a component or module, the supplier is responsible for conceptual design, detailed design, prototype, testing and setting up its production and assembly process.
- 2 Global design. Here, the buyer communicates a rough design to the supplier, who needs to work out a detailed design and submit this for approval to the buyer. When approved, the supplier is responsible for prototyping, testing and manufacturing.
- 3 Detailed design. The supplier is responsible for submitting a prototype or sample to the buyer for approval, which is tested. Next, the supplier is responsible for setting up production and assembly.



²Adapted by the authors from Wynstra and Ten Pierick (2000).

³Alternatively, the buyer may present a business problem to the supplier for which the supplier is asked to design a solution.

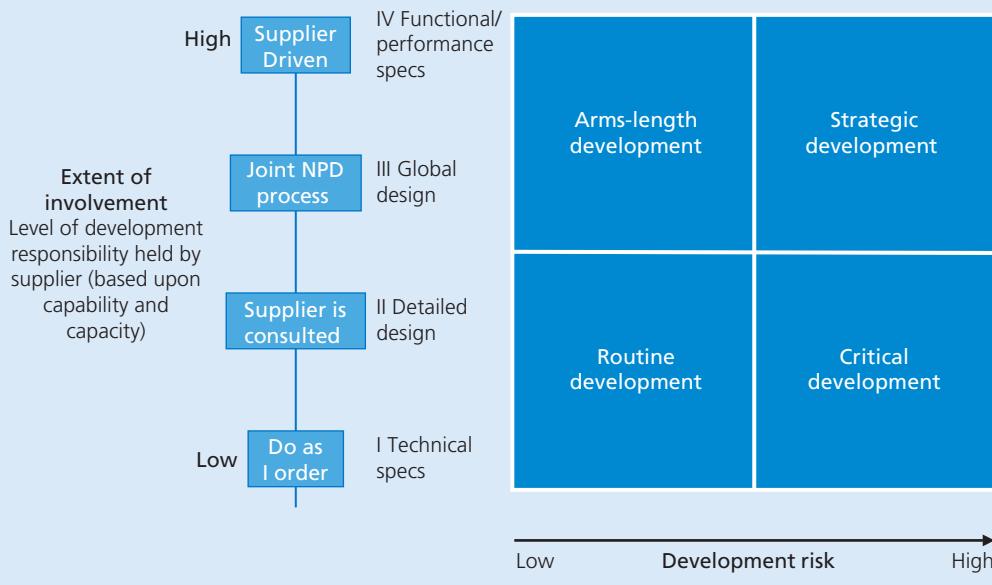
- 4 Standard design.** Here the buyer decides to integrate a standard and/or fully specified component in their product design. After the product design has been tested and is frozen, the supplier is requested to submit a price proposal and production planning.

Development risk is related to a number of factors. Examples are: the component is new to the buyer, unfamiliarity with the functionality of the component by the buyer, criticality of the component for the buyer's product functioning, component is on critical the path of planning and a number of technologies

represented in the supplier's component. Based upon these criteria, an assessment can be made per project for the most critical parts where the buyer falls short in terms of knowledge and expertise. Those are the parts where specialized suppliers will be engaged early in the new product development project. Standard parts come with low risk in general and low technical complexity. Suppliers of standard parts therefore can be engaged late in the process. This is how the supplier development portfolio (refer to Figure 11.7) may guide buyer decision-making on ESI, which is better referred to as timely supplier involvement.

Figure 11.7 Supplier development portfolio

Source: Adapted from Wynstra and Ten Pierik (2000) and Suurmond et al. (2020).



Conditions for effective co-innovation with suppliers

Rather than early involvement of suppliers in new product development, buyers need to involve suppliers on a timely basis in this process. The questions then remain about how to benefit from supplier knowledge and expertise, and how to unleash this expertise. Since supplier technical specialists face a dilemma when working side by side with their client on new product development, should they primarily focus on serving their own company's interests, or should they focus on serving primarily their client's interests? From a buyer point of view, the former should be avoided and the latter preferred. How can buyers make sure that supplier technical experts will work side by side with their colleagues in the client's interest?

A first series of research into this topic was conducted by Sumo (2014), who studied the effects of different contract models on innovative cooperation with suppliers.

Her research shows that performance contracts are supportive for co-innovation.⁴ However, buyers need to be careful on how to use incentives in this type of contract. This is because short-term performance-based incentives may impede the development of truly innovative ideas because suppliers will reduce any risks in order to avoid not meeting their KPIs. Furthermore, Sumo shows that performance contracts do not make sense in a company with a risk-averse culture. Finally, an important finding is that the quality of the supplier relationship is much more important than the type of contract. Based upon her research Sumo argues that the quality of the relationship is decisive in terms of the freedom experienced by suppliers' experts when sharing innovative ideas with clients.

This idea was further developed by de Vries (2017), who demonstrates that effective early involvement of suppliers in product development is all about human interaction. Supplier technical experts must manage conflicting interests: the interests of the company in developing a profitable business, versus the client's interests in bringing successful innovations to the market. This conflict can only be resolved if the client informs the supplier about their business plans and sees both the supplier and their representatives as full partners. Fostering a climate of trust is crucial. This requires the buyer to have a clear eye on the short-term and long-term interests of the supplier. This has significant implications for the way in which suppliers, i.e. supplier specialists, are introduced into the buyer's organization and how these engage with the buyer's technical experts. For this reason stewardship theory was suggested as a source of inspiration to foster and guide supplier collaboration in new product development (refer to Theory Snapshot 11.1).

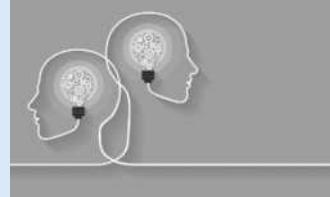
Theory snapshot 11.1

Stakeholder and stewardship theory

Stewardship theory emerged as a spin-off of the widely known stakeholder theory that was initiated by Freeman (1984). According to stakeholder theory thinking, business relationships do not occur in a vacuum of dyadic ties, but as a network of influences involving multiple stakeholders. Any company or organization should serve the interests of its most important stakeholders, rather than focusing only on the interests of one of these, i.e. its shareholders. As suppliers are also an important stakeholder in any organization, stakeholder theory should imply that, when integrating suppliers in new product development, the buyer should certainly know and acknowledge the supplier's business interests, and even the supplier expert's personal interests. Stewardship theory builds on this idea by arguing that given a choice between self-serving behaviour and pro-organizational behaviour, a steward will place higher value on co-operation rather

than defection or neglect. It argues that when treated properly external stakeholders (e.g. suppliers) are able to identify with a client's business interests and objectives. Stewardship theory would assume that a buyer would give sufficient attention to introducing the supplier experts carefully into their organization, informing them extensively about the project and making them comfortable in working with the client's experts (Davis, Schoorman & Donaldson, 1997). It assumes that buyers would consider early supplier involvement primarily as a process of human interaction and would ensure supplier representatives would be dealt with on an equal footing.

Rather than on price, current spend volume or past performance, buyers should select their innovation partners based on their innovation capability, research and development capacity, experience with being



⁴In particular, those performance contracts aimed at soliciting solutions from specialist suppliers will affect the company's innovative potential in a positive way.

involved in NPD projects, potential for value contribution and, last but not least, their willingness to invest in collaboration and assume risks.

For example, ASML, supplier to the semiconductor industry, identifies its innovation partners based upon an assessment of the supplier's ability to bring value to ASML's customers and the extent to which they contribute to differentiation against the competition. Chemicals company BASF selects innovation partners primarily based upon their current business impact on BASF (i.e. total spend, supplier dependency, business coverage) in combination with high value potential for BASF. This latter is assessed based upon supplier innovativeness in BASF relevant fields, strategic fit

with BASF strategy (e.g. future needs on technology, regional presence and market position of supplier), supplier readiness/willingness for collaboration (e.g. ease of interaction, customer of choice position), cost competitiveness and sustainability. Once an innovation partner is selected, they will jointly develop a business case which should result in a clear positive business impact on innovation, business growth, supply risk, sustainability and total costs of ownership.

According to Deloitte (2018) two-thirds of procurement executives lack a clear visibility past Tier 1 suppliers, while it could be that there are some excellent innovation partners among Tier 2 or 3 suppliers.

Having carefully selected the best-in-class suppliers, companies next should focus their efforts on building constructive and innovative relationships. This implies that technical experts from the supplier will become part of the buyer's innovation project teams and vice versa. Often both parties are confronted with difficulties in collaborating effectively together, which could relate to differences in management style, ways of working and culture. Memo 11.4 discusses what it takes to foster a creative climate in joint NPD projects.

Suppliers are often selective about which customer they want to share knowledge and ideas with about new products or services, when and in what area. Whether suppliers focus on joint innovation with a specific customer depends partly on their marketing and sales strategy. One of the key questions buyers should ask themselves is: will my supplier provide me with breakthrough innovation before bringing it to our competitors? Or, in other words, are we a customer of choice when it comes to innovation? (refer to Memo 11.5).

Memo 11.4

Team Creative Climate

According to Kiratli et al. (2016), creativity is one of the main drivers of innovation. Defined as the ability to develop novel, unusual and meaningful solutions for a business problem, the procurement function's contribution to a firm's competitive advantage strongly depends on its individuals' and teams' collective creativity. Against this background, Kiratli et al. investigated whether and how buyer-supplier co-innovation teams benefit from creative team climates when generating creative ideas for business solutions. Results from their empirical studies reveal that both creative performance as well as business performance are enhanced when a creative

team climate is present in these project teams. In such a climate participants are taken seriously in the group, they feel they can share their creative ideas without being rejected and can build on an idea from their colleagues. Team Creative Climate (TCC) refers to the team members' shared perceptions of their joint policies, procedures and practices with respect to developing creative sourcing strategies. This climate exists in the presence of nine specific team characteristics, as presented in Table 11.1. The higher the scores, the stronger the creativity climate.



Table 11.1 Team characteristics

In this co-innovation team we...		Completely disagree			Completely agree
1	Are open to each other's views and ideas	1	2	3	4
2	Strive to think across departmental boundaries	1	2	3	4
3	Actively seek out each other for constructive discussions	1	2	3	4
4	Encourage each other to try new ways of doing things	1	2	3	4
5	Are comfortable with exploring unfamiliar ideas & perspectives	1	2	3	4
6	Openly share thoughts without fear of rejection	1	2	3	4
7	Build on each other's ideas	1	2	3	4
8	Take each contribution seriously	1	2	3	4
9	Promote behaviours for a trustful environment	1	2	3	4

Source: Kiratli, N., Rozemeijer, F.A., Hilken, T., De Ruyter, K., & De Jong, A. (2016). Climate setting in sourcing teams: Developing a measurement scale for team creativity climate. *Journal of Purchasing and Supply Management*, 22(1), 196–204.

Memo 11.5

Unilever's Partner-to-Win programme

With the arrival of Paul Polman as new CEO in 2009, Unilever launched its strategy for sustainable growth ('Compass'). With this, Polman established a clear and compelling vision to double the size of Unilever while halving its environmental impact and increasing its positive social and societal impact. However, doubling sales turnover is no easy task. It requires significant efforts in terms of marketing (developing new markets), sales (selling more products), research and development (developing new products), manufacturing (expanding capacity) and sourcing (securing raw materials and supplies). Unilever would never be able to achieve these ambitious goals without active support from its key suppliers in the areas of innovation, sustainability and cost savings.

Strongly aware of the fact that the main suppliers make their own choices and do not allow themselves to be forced in a certain direction, Unilever's CPO at that time, Marc Engel, decided to organize a meeting for its 350 main suppliers to explain the new strategy. In order to give the suppliers the opportunity to express their opinion on Unilever's innovative qualities, an extensive survey was sent out to all invitees prior to the meeting. The results clearly showed that in the perception of

the suppliers, Unilever was not their most attractive and innovative customer. As one supplier expressed: 'I would love to innovate with Unilever, but life is too short! So, I go to their competitor, who is much more responsive.' There was considerable room for improvement in the field of co-innovation. Not long afterwards, Unilever's CPO announced his Partner-to-Win programme with the ambition to position Unilever as a future customer of choice for its strategic suppliers and thereby gain access to the innovative power of these suppliers. The key insight was that suppliers would first share their best ideas with their most attractive and innovative customers. By building mutual trust and increasing the quality of the relationship, Unilever has been able to make concrete agreements on business development (including volume growth, production capacity) and co-innovation (including developing new technology and products) together. Unilever benefitted considerably from its investment in supplier relationships. Dhaval Buch, former CPO, once stated at a Procurement Conference that 72 per cent of Unilever's innovations were primarily supplier partner driven.



In principle, the best suppliers on the market want to work with their best customers and are willing to invest in the relationship, but they want to have something in return. In other words, the customer value they provide (e.g. products, service, innovation) must be in proportion to the supplier value they receive in return. Such supplier value can be found in specific knowledge and information being shared by the buying company, but also in early supplier involvement, supplier development, supplier awards, on-time payment, turnover guarantees, etc. Because it is not always explicitly clear what is valuable for a supplier, Ramsey and Wagner (2009) argue that procurement professionals should pay more attention to systematically examining the motivations, intentions and desires of key suppliers and innovation partners. Only when procurement professionals have a good understanding of what really motivates suppliers would they know what to do to 'tempt' the suppliers to invest in the relationship and contribute to innovation.

Summary

In this chapter, the role and importance of procurement and suppliers in new product development were discussed. As global competition intensifies, innovation, time-to-market and flexibility have grown in importance.

Increasing competition forces companies to speed up their innovation processes. Traditionally, new product innovation was conducted using primarily internal knowledge, expertise and resources. As a result, new product innovation was slow and led to only a few market introductions a year. In order to speed up innovation and share the massive investment that goes with new product innovation, large corporations today have embraced the open innovation paradigm. Innovation today cannot be confined to the traditional boundaries of organizations anymore. Open innovation fosters supplier involvement in new product development. This happens because suppliers increasingly are an important source of innovation. The challenge, however, is how and when to mobilize a supplier's innovation potential. This challenge is not without problems since it poses clear demands in terms of the professionalism of all the parties involved. When going for supplier involvement in innovation, the buying company needs to consider three types of processes: strategic management processes, operational management processes and collaboration management processes.

A question to consider is what supplier to involve at what stage of the new product development process. The new product development portfolio may serve as a vehicle to support effective decision-making on this matter. As the product development process advances, the product specifications become more and more fixed, and it therefore becomes more difficult to introduce product changes. Furthermore, changes made at a later stage will make the costs rise exponentially. Early involvement of both procurement and specialist suppliers therefore is an opportunity to prevent challenges and issues in later stages.

Effective onboarding of suppliers in new product development requires the right type of contracts that should incentivize suppliers to do their utmost best, while at the same time awarding them fairly for their efforts. Next, the contract should mitigate risks and secure intellectual property. Performance-based contracts therefore support co-innovation. However, more important is the relationship between the parties involved. Innovating with suppliers is primarily a process of human interaction.

Buyers should assist supplier experts in overcoming the conflict between a supplier's self-interest and its client's business and project interests. Stewardship theory may help buyers in fostering a trusting, creative climate that allows all parties involved to openly share their ideas and knowledge. Only when the buyer's organization is considered by the supplier as a customer of choice will they share best ideas and bring innovation to this customer first.

Assignments

- 11.1** What kinds of risks are related to involving suppliers early on in new product development projects? Answer this question from the perspective of (a) the buyer and (b) the new product development engineer.
- 11.2** What kinds of benefits would you as a manager of a company require to make up for the risks that were mentioned when answering the previous question?
- 11.3** What will it take from a buyer to develop innovative, collaborative relationships with suppliers? What is the best way to select an innovative supplier?
- 11.4** Should innovation sourcing be part of every buyer's job, or should it be part of a newly created job: the innovation buyer?
- 11.5** There are many different forms of innovation: technology innovation, process innovation, product innovation and business model innovation. Discuss how procurement can contribute to each of them.

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12 Procurement with purpose: driving sustainability in supply chain relationships

Learning objectives

After studying this chapter you should understand the following:

- The importance of corporate social responsibility.
- Procurement's contribution to 'people, planet, profit'.
- How circular sourcing relates to sustainable procurement.
- The importance of integrity codes within procurement.
- How companies can act responsibly in their relationships with their suppliers.

Introduction

As today's consumers increasingly embrace social and environmental concerns, they seek products and brands that align with their values. In response, governments put more and more regulations in place to drive socially and environmentally responsible behaviour of companies (e.g. hazardous substance, conflict minerals, human trafficking, corruption, European green deal, Paris agreement). Driven by these regulations and customer preferences, a growing number of companies (e.g. Unilever, DSM, Philips) show a vast interest in doing business responsibly and sustainably. They evolved from ignoring or understating the problem and minimizing their responsibility, via recognizing the problem and wanting to solve it, to seeing it as an opportunity to lower costs, reduce risks, improve employee attractiveness, grow revenues or differentiate value propositions that address social and environmental problems (Nidumolu, Prahalad & Rangaswami, 2009). More and more evidence is available showing that selling sustainable products and solutions is profitable. Next, companies that score high on sustainability significantly outperform their less sustainable competitors.

Sustainable companies often select a set of key strategic sustainability commitments that are derived from the 17 environmental and social dimensions described in the United Nations Sustainable Development Goals (UN-SDG). When deciding on their strategic sustainability commitments, these companies ask themselves: how and where can we make the world a better place with the knowledge and experience that we have in our company and through the money that we (in)directly spend in our supply chains?

It's all about finding some greater goal for procurement than just saving costs and making sure that products are delivered on time. Sustainable procurement is aimed at, for example, reducing energy consumption, respecting human rights, abolishing child labour and assuring that supplier workers are paid in line with local labour laws. This is known as purpose-driven procurement. A strong shared purpose helps procurement professionals to better navigate through the sustainability and integrity challenges they are confronted with in their daily job. In this chapter, we will explore the sustainable and social dimensions of procurement with purpose.

Memo 12.1 looks at the UN-SDG.

Memo 12.1

UN Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) were born at the UN Conference on Sustainable Development in Rio de Janeiro in 2012. The objective was to produce a set of universal goals that would meet the urgent environmental, political and economic challenges facing our world. The 17 SDGs described in Figure 12.1, were adopted by all UN member states in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.

These 17 SDGs recognize that action in one area will affect outcomes in others, and that development must

balance social, economic and environmental sustainability. Fulfilling these ambitions will take an unprecedented effort by all sectors in society – and business has to play an important role in the process. For companies wanting to advance the SDG agenda, the job starts by acting responsibly and incorporating the SDG agenda in their strategy and operations. Achieving the SDGs requires the partnership of governments, private sector, civil society and citizens alike to make sure we leave a better planet for future generations.



Note: The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States.

Figure 12.1 UN Sustainable Development Goals (SDGs)

Source: UNDP Sustainable Development Goals, www.undp.org/content/undp/en/home/sustainable-development-goals.html

1 No poverty	2 Zero hunger	3 Good health and well-being	4 Quality education	5 Gender equality	6 Clean water and sanitation
7 Affordable and clean energy	8 Decent work and economic growth	9 Industry, innovation and infrastructure	10 Reduced inequalities	11 Sustainable cities and communities	12 Responsible consumption and production
13 Climate action	14 Life below water	15 Life on land	16 Peace, justice and strong institutions	17 Partnerships for the goals	

Today, global sourcing in the business world is widely developed. Western consumer electronics, apparel or toy manufacturers in many cases do not sell products that come from their own factories. Increasingly, these products are produced by so-called contract manufacturers, who manufacture their products based on the requirements of their Western customers. Ever increasing competitive pressures force these manufacturers to continuously look for cheaper sources of supply. China, Thailand, Malaysia as well as Indonesia and Vietnam, because of their low costs, are, for many buyers, interesting destinations for global sourcing. However, doing business successfully in these countries requires careful preparation.

Local laws on how to protect the environment and social security are not widely developed and, where present, not enforced. Child labour, long working hours (a 12-hour working day, six days a week is not uncommon) and terrible working conditions are frequently encountered in these countries. When Western companies do business with these countries, international humanitarian laws should be respected. But there is another reason why Western companies need to operate carefully in these regions – a growing number of Western consumers do not accept companies that do business in an unsustainable way and boycott their products. Unethical sourcing practices, therefore, can do major harm to the brand value and reputation of companies in Western markets and may even result in major financial damage and losses.

The case study featuring Mattel may serve as an illustration. In September 2007, this company had to recall products from its markets three times due to violations of environmental and social laws. In total, 19 million toys needed to be recalled from the market, leading to major financial losses for the company. Due to these incidents, Mattel, like many Western manufacturers, has become much more critical with respect to the way in which procurement is undertaken. Today, most Far Eastern suppliers are thoroughly screened on sustainability issues and labour conditions by most of their Western customers and production orders are monitored and supervised accurately by quality inspectors on site.

Case study

Mattel's reputation at stake through sourcing in China

In 2007 Mattel, the global leader in children's toys, became front-page news due to its problems with Chinese suppliers. It was discovered that a few suppliers had replaced certified paint with cheaper paints to reduce costs. Unfortunately, the new paint contained lead, which is harmful to children's health and safety. In bringing these products to consumers, Mattel apparently was violating US regulations on health and safety.

Mattel was not informed by its contract manufacturers of the change of paint. The company received the news when a European retailer discovered lead paint on a toy. Due to extensive press exposure, Mattel's senior management had to recall 1.5 million Chinese-made products. Later, another 436,000 products had to be recalled. As a result of this incident, Mattel found itself at the centre of a debate over sustainable sourcing and more particularly about the safety of products made in China.

Apparently, during the many years that Mattel had sourced its products from China, the company had become overconfident about its ability to operate in China without major problems. Initially, it seemed that the problem was limited to only one supplier. However, when Mattel's safety lab at Shenzhen was investigated, other products with similar failures surfaced. That was the moment when the board of management recognized it probably had to deal with a more systemic problem, rather than the isolated case of one bad paint supplier. Earlier, Mattel was involved in another affair when it had to recall millions of toys with tiny magnets that had harmed some children who swallowed them.

Mattel found out that some of its preferred suppliers, in order to save costs, did turn to cheaper suppliers themselves. One of these low-cost suppliers was the paint suppliers who were not listed on Mattel's approved supplier list.

Mattel has been manufacturing in Asia far longer than many other companies. The first Barbie was made there in 1959. Other products, like its Fisher Price toys, Matchbox cars and Pixar toys followed. It developed long-term relationships with certain Chinese contractors, some of which spanned decades. Paradoxically, this might have worked against the company. The longer it outsourced to a contract manufacturer with good results, the more lax its controls became. Two contractors that caused the recalls were among the most trusted. Lee Der, the supplier involved in the first recall, had worked with Mattel for 15 years. Early Light Industrial, which made the Sarge cars, had supplied toys for more than 20 years. The latter supplier caused the recall of 436,000 Pixar car toys, which was also caused by yet another contractor, as Early Light had subcontracted production of the cars' roof and tyres to a subcontractor called Hong Li Da. In all cases, Mattel's contract manufacturers violated the company's rules on what paint they were allowed to use. Mattel had certified only eight paint suppliers.

Mattel realized that it was not watching its contract manufacturers closely enough. It appeared that a number of companies were part of Mattel's supply chain that were never visited by Mattel's sourcing professionals and quality inspectors. As a result, Mattel's board of management decided on a three-point action plan of: (1) tightening control of production, (2) investigating unauthorized use of subcontractors by contract manufacturers, and (3) bringing back in-house testing of all purchased products.

Based on its investigations, Mattel fired four contractors and enforced the rule upon their contract manufacturers that they cannot hire two or three layers of suppliers below them without their approval. In order to restore its reputation, global advertising campaigns were set up to inform consumers about the measures that were being taken. Part of the campaign was the statement that Mattel is less dependent on Chinese suppliers than most of its competitors.

Sources: www.nytimes.com, www.bloomberg.com, www.theguardian.com.

In recent times, other companies have been compromised by similar sustainability problems in their supply chain relationships. Apple has received criticism in recent years for labour issues related to their primary contract manufacturers for iPads and iPhones in China, Foxconn. While Apple appears to have made a respectable effort to improve labour conditions within their supply chains, problems remain at Foxconn. In 2019, China Labor Watch (a New York based NGO) and the British newspaper *The Observer* claimed that Apple and Foxconn had violated Chinese employment laws, by using too many temporary staff in the world's largest iPhone factory. Typically, these temporary workers do not get sick pay or holiday pay and can be laid off without wages during periods of low production. China changed its labour laws in 2014 to limit the use of temporary workers to 10 per cent of any work force in an attempt to stop companies exploiting them to cut costs. The share of temporary staff at Foxconn's iPhone factory was close to 40 per cent.

In 2013 some fashion companies, such as H&M, were exposed negatively in the news due to the collapse of the factory building of one of its textile producers in Bangladesh. As a result of this disaster, over 1000 workers were killed. These and other affairs fired the public debate about the responsibility of multinational firms for their relationships with low-cost country producers. Obviously, this debate has some important implications for procurement professionals who deal with suppliers from these countries.

This chapter deals with the subject of how procurement managers can contribute to a better world, a better environment and better labour conditions. Socially and environmentally responsible procurement needs to be based on the general business principles that are part of the company's business model. It cannot be looked at in isolation. For this reason, we start this chapter with a discussion of **corporate social responsibility** (CSR). Next, we will also discuss the importance of social values and ethics in buyer-supplier relationships.

Corporate social responsibility How to contribute to a better world, a better environment and better labour conditions. The idea is to develop business solutions in such a way that requirements of the current world population are met without doing harm to the needs of future generations. Companies need to balance the interests of customers, employees, the environment and its shareholders, i.e. serving the needs of 'people, planet, profit'.

Business principles and procurement

Imagine the following situation. You are a project buyer employed by Shell in Brunei and assigned with the important task of buying the materials and equipment for one of Shell's many exploration projects conducted in the Indonesian archipelago. For the drilling work, the company needs many miles of steel piping that need to be imported from the West. The project planning is critical. If a drilling project comes to a halt due to material shortages, this will result in a financial loss of tens of thousands of dollars per day.

Being a buyer, it is better to avoid this kind of tricky situation. Your supplier informs you that the piping you ordered has been shipped to the port of destination. However, it still needs to pass through the port's customs. Customs are busy. At your request to process the approval of your order quickly, the customs officials let you know that they suffer from a heavy workload. As a result of this, processing your cargo will probably take several weeks. Things may be speeded up if Shell were willing to pay the officer for the extra work involved ... What would you do in such a situation? Would you engage in a discussion with the customs officials and pay a little amount of money to make sure that the drilling work can be continued?

Shell is of the opinion that such a situation cannot be decided upon by individual buyers or local managers. The answer to this and similar situations is to be found in Shell's business principles that apply to every Shell employee worldwide. Shell will never pay in this type of situation. Illegal customs practices will be prosecuted in the courts. As a consequence, Shell will accept the loss that the company will incur as a result of the delay incurred at customs.

Memo 12.2 provides an overview of the subjects that are discussed in the Shell business principles. Every Shell employee is supposed to be familiar with these principles. These principles provide the context and foundation for every manager to guide their daily decision-making.

Memo 12.2

Shell general business principles

The Shell business principles include the following:



- Our values
 - honesty
 - integrity
 - respect
- Sustainable development
- Responsibilities
 - to shareholders
 - to customers
 - to employees
 - to whom we do business with
 - to society
- Principle 1: Economic
- Principle 2: Competition
- Principle 3: Business integrity
- Principle 4: Political activities
- Principle 5: Health, safety, security and the environment
- Principle 6: Local communities
- Principle 7: Communication and engagement
- Principle 8: Compliance

Source: www.shell.com/about-us/our-values/_jcr_content/par/relatedtopics.stream/1572622107415/f3e59c06223516799f4a2d5fe63b824839f3a4f3/shell-general-business-principles-2014.pdf

As the principles show, each Shell employee should respect under every circumstance local and international laws, including humanitarian laws. The company does not allow competition to be limited in whatever form whatsoever. Honesty, integrity and transparency are keystones in the way the company is managed. Accepting or providing bribes is considered illegal. The company will not provide financial support to local political parties; neither will it interfere in local political activity. This does not exclude, however, financial support that Shell may provide to local municipalities in order to improve living conditions for its local workers.

Other large companies have similar regulations and arrangements. One reason for these regulations can be explained by the increasing transparency of global supply chains. If a company wants to impose higher demands on its supply chain partners it should, of course, be able to meet these requirements itself. ‘Improve the world, but start with yourself’ is the motto for doing business responsibly. Business integrity is, as this chapter explains, an important part of this.

Towards a sustainable future: ‘people, planet, profit’

Today, the UN-SDGs are a prime topic on the agenda of many top managers. Sustainability is often used as a general, container concept, without highlighting the different aspects it comprises. The SDGs clearly are focusing on different aspects. The idea behind the SDGs is to develop business solutions in such a way that the requirements of the current world population are met without doing harm to the needs of future generations. This is far from simple. Sustainable development is aimed at developing a better world. Sustainable procurement (or procurement with purpose), therefore, is about buying for a better future world.

These concepts today are increasingly adopted by the Western world. As a consequence, companies which are solely focused on their economic benefits are less and less accepted by the general public. The traditional *shareholder* focus has made way for a *stakeholder* focus which incorporates a much wider scope (refer to Theory Snapshot 12.1). Sustainable profitability can only be achieved if the company is able to balance the interests of customers, employees, society, the environment and its shareholders, i.e. serving the needs of ‘people, planet, profit’. Following Carroll (1991), this idea can be schematically represented in the sustainability pyramid (Figure 12.2).

This idea means that large companies focus on producing their products and services in a sustainable way. A company such as DSM (www.dsm.com), for example, articulated some years ago that a major objective was developing a top position in the chemical industry on the issue of sustainability. This is understandable, if one considers the environmental damage that is usually caused by this type of industry. As chemical companies have now become very visible to the general public, they need to pay attention to environmental concerns. In their CSR policies they emphasize three major stakeholders: ‘people, planet, profit’.

The ‘people’ aspect includes all activities that are focused on providing good labour conditions for employees and a labour climate in which individual employees are able to develop their skills and competencies. This explains the great interest today in safety, health and environment within companies and suppliers. In addition, it aims to create value for society in which the company and its suppliers are based, as the supply chain is an important part of society.

Figure 12.2 The pyramid of corporate social responsibility

Source: Business Horizons, Volume 34, Issue 4, Archie B. Carroll, The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders, page 10, Copyright 1991, with permission from Elsevier.



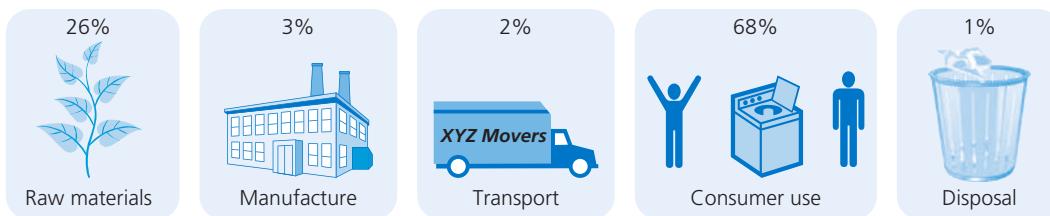
The 'planet' aspect includes all activities that are focused on an efficient use of natural sources of energy, raw materials and of other natural resources. Waste disposal, reuse of scrap and surplus materials, and reverse logistics are part of the 'planet' aspect. It also includes bringing down carbon emissions.

The 'profit' aspect provides guidelines for sustainable financial development of a company, measured over a longer period of time. When improving profitability, the idea is that the company keeps a good eye on the interests of all stakeholders concerned, like customers, shareholders, employees and suppliers. For a bank such as Triodos Bank (www.triodos.nl), in their own words one of the most sustainable banks in the world, this may imply that investments are only made in companies that offer sustainable products and solutions to their customers. Investing in heavy polluting industries or companies that manufacture weapons for the defence industry may not be in line with the bank's sustainability principles.

The basic idea is that business decisions are continuously tested against these three principles. Another company which has paid attention to sustainability is Unilever (refer to Memo 12.3). In 2010 this company launched its Unilever Sustainable Living Plan (USLP). This plan was aimed at achieving three major objectives before 2020: (1) to help more than 1 billion people improve their health and well-being, (2) to halve the environmental footprint of Unilever's products, and (3) to source 100 per cent of all agricultural raw materials sustainably and enhance the livelihoods of people across the entire value chain. The USLP is based on a thorough analysis of Unilever's carbon footprint across its value chain, from its raw materials suppliers up to its retailers and end-consumers. The results of this analysis are shown in Figure 12.3.

Figure 12.3 Unilever: driving carbon footprint down in the value chain

Source: Unilever Sustainable Living Plan: Progress Report 2012, www.unilever.com.



This figure shows that only 3 per cent of Unilever's carbon footprint is caused by its factories. Around 2 per cent is caused by its distribution and transport network. However, its supplier network is responsible for 26 per cent, which represents a significant challenge for its sourcing specialists. Finally, 68 per cent of its carbon footprint is caused by the consumer at the point of consumption.

This analysis explains why Unilever has put great emphasis on new product development and innovation in order to stimulate sustainable behaviour from their consumers. New detergents, allowing for less water consumption and lower temperatures, and hence energy, have been introduced. Another example is body care products, such as shampoos that allow faster rinsing when taking a shower. Sourcing strategies have been aimed at improving farmer productivity, less use of pesticides and increasing the use of renewable energy.

The USLP has changed its international sourcing strategies significantly (refer to Memo 12.3). From the start, it was clear for Unilever that they could not achieve the USLP targets on their own; they were dependent on their key suppliers to contribute as well. Therefore, Unilever launched a programme called Partner to Win (PtW). The main goal of the PtW programme was to drive Unilever to work more closely with its key suppliers on business development, innovation and sustainable practices. In particular, partnerships were developed with agricultural raw material suppliers to achieve the sustainable sourcing goals. For example, Unilever established the Knorr Sustainability Partnership Fund to support vegetable suppliers on complex sustainable agriculture projects that they were unable to tackle alone. Other examples in the food business are Danone, Nestlé, Nespresso and Mars, who have embarked on similar programmes.

In order to measure progress in the sustainability domain, large companies report on indicators that are derived from, for example, the Dow Jones Sustainability Index, the Global Reporting Initiative (GRI) and EcoVadis sustainability ratings. In their reports, these institutions use a wide range of indicators. The manner in which the company is managed, i.e. its corporate governance, risk and crisis management, ethical codes that are present within the organization, the way in which the company tries to improve eco-efficiency and reduce waste and carbon footprint (CO_2), improve fuel efficiency, labour conditions and safety, are just a few of these indicators.

As the example of Unilever shows, the relationship with suppliers is an important topic. An increasing number of sustainability guidelines also take the supply chain performance into account when assigning a sustainability score to a company. An example is the ISO 20400 guideline, the world's first international standard for sustainable procurement, which aims to help organizations develop and implement sustainable procurement practices and policies.

Memo 12.3

Unilever Sustainable Living Plan

'In November 2010 we set out the Unilever Sustainable Living Plan (USLP), our blueprint for achieving our vision to double the size of the business while reducing our environmental footprint and increasing our positive social impact. Our Sustainable Living Plan has three big goals to achieve by 2020:

- Help more than 1 billion people improve their health and well-being.
- Halve the environmental footprint of our products.
- Source 100 per cent of our agricultural raw materials sustainably and enhance the livelihoods of people across our value chain.

Key features of our plan are:

- Spans our entire portfolio of brands and all countries in which we sell our products.
- Has a social and economic dimension – our products make a difference to health and well-being, and our extended supply chain supports the livelihoods of many people.
- When it comes to the environment, we work across the whole value chain – from the sourcing of raw materials to the way consumers use our products.'

In 2020, ten years after launching the USLP, CEO Alan Jope mentioned the Unilever Sustainable Living Plan as a game-changer in its business. He reported that some goals were met, some were missed, but also that Unilever had improved its competitive position just by trying. Chief Sustainability Officer, Rebecca Marmot, explains:

'Unilever's Sustainable Living Brands have consistently outperformed the average growth rate of the rest of the portfolio. We have avoided over €1bn in costs, by improving water and energy efficiency in our factories, and using less material and producing less waste.' For example, all US operations have moved to sourcing their energy from certified, renewable sources and they achieved zero non-hazardous waste to landfill.

Although Unilever didn't fully achieve their initial target they maintained momentum towards their target of 100 per cent sustainable sourcing of all agricultural raw materials, reaching 36 per cent by the end of 2012 and 62 per cent by the end of 2020. The complexity of many of the global raw materials supply chains (e.g. palm oil) often results in a lack of full visibility of these supply chains, which makes the 100 per cent sustainable sourcing target extra challenging. There is still much work to be done to reach this target.

The USLP has become a decisive factor to attract the best talent and has been instrumental in forging strong partnerships with NGOs, governments and other businesses. Following on from the USLP, Unilever is committed to continuing to be a sustainable leader in the future and has developed a new, fully integrated corporate strategy: the Unilever Compass. This new strategy is based on three core beliefs: 1) brands with purpose grow, 2) companies with purpose last, and 3) people with purpose thrive.¹



Another example is EcoVadis (www.ecovadis.com), one of the world's largest providers of business sustainability ratings. EcoVadis supports companies with a universal set of scorecards, benchmarks and tools to improve environmental, social and ethical performance of their suppliers.

Improving sustainability performance in supply chains is not a simple task, as it requires a fundamental change in the way companies and managers do business. This is explained in the next section.

¹Sources: 'Unilever Sustainable Living Plan: Progress Report 2012' and 'Unilever celebrates 10 years of the Sustainable Living Plan', www.unilever.com; '10 Years of the Unilever Sustainable Living Plan', www.youtube.com.

Theory snapshot 12.1

Understanding sustainability thinking: from the resource-based view to stakeholder theory²

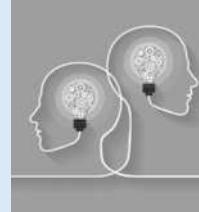
Traditionally, shareholder value creation has dominated management and business practices for decades. The purpose of the firm was to create maximum profit for its owners, i.e. its shareholders. In doing so the firm should use and capitalize on its own resources, i.e. the combination of its technology, assets, knowledge, financial resources and expertise. For a long time, this resource-based view was the most dominant paradigm in management. The resource-based view suggests that a firm's unique resources (i.e. its competencies to deploy those resources and its capabilities that are derived from bundled resources) provide a source for growth and competitive advantage. Possessing and having access to valuable, rare, inimitable and non-substitutable resources would provide competitive advantages in itself, some researchers argued. However, other researchers suggest that value is created only when these resources are deployed appropriately within the firm's environmental context. Resources thus require a purpose in order to be successfully structured, bundled and leveraged. Purpose and value are given to a firm's resources through directing them with an external orientation, i.e. an orientation towards the needs of customers and society.

The resource-based view is in essence internally oriented and only implicitly embeds supplier resources and capabilities in the process of structuring, bundling and leveraging resources to obtain competitiveness and meet the needs of customers and society. Therefore, other researchers have suggested that rather than internal resources, the firm also needs to deal with its external resources, i.e. its external dependencies, in order to achieve competitive advantage. This idea is reflected in the resource dependence theory, which typically looks beyond the boundaries of an individual firm. It argues that firms are not self-contained in fulfilling demands and therefore need to establish effective linkages with suppliers and other partners to access resources and capabilities required to deliver customer and societal value. Developing effective relationships with the most qualified suppliers seems to be a prerequisite to secure the external resources that are required to create customer value creation and, hence, foster the firm's competitiveness.

The resource dependence theory is explicit about the purpose of the firm: satisfying external stakeholders, i.e. customers, investors and other organizations that are affected by the firm. This idea is acknowledged and elaborated on by stakeholder theory. Stakeholder theory suggests that each stakeholder represents different values that the focal firm should try to realize. The aim of stakeholder theory is to satisfy a broad array of stakeholder groups based on their specific demands. Stakeholder orientations result in firm competitiveness because focus on stakeholder satisfaction allows a firm to develop trusting relationships with their stakeholders, giving these firms the opportunity to deal better with changes in the environment and consequently spur innovation.

A stakeholder can be any group or individual who can affect or is affected by the achievement of the organization's objectives. These include for instance employees, communities, customers, political groups, NGOs, investors, governments, suppliers and trade associations. When we adopt this perspective, companies should not only create value for the firm's markets (customers) but also for society (all stakeholders representing social and environmental concerns) and for those who have invested financial resources in the firm (shareholders, investors).

In conclusion, the resource-based view of the firm, the resource dependence theory and stakeholder theory each emphasize a different element of how firms may create value through smartly connecting resources and capabilities across their supply chains. The resource-based view of the firm is more concerned with the management of a firm's internal resources and capabilities that may satisfy external stakeholders of the firm. In the resource dependence theory, the firm's dependence on other external parties, such as suppliers, is central. Finally, the stakeholder theory focuses on the diverse stakeholder perspectives a firm needs to balance, weigh and respond to. It argues that for achieving competitive advantage a firm and its supply chain partners should create in parallel customer value, societal value and shareholder value. This is what procurement with purpose is all about.



²This section is partially derived and rewritten from Kibbeling (2010, pp. 20–24).

Procurement with purpose: towards sustainable supply chains

Suppliers are an important source for competitive advantage to companies and need to contribute to delivering customer value, societal value and shareholder value. However, as the examples of Mattel and Apple earlier in this chapter showed, suppliers can also be an important source of unforeseen problems. The company's reputation can be severely damaged if suppliers are selected without proper precaution. How do you put principles in place with regard to people, planet and profit? How do you convince suppliers to promote sustainability principles in their operational processes? Some companies are leading the way. In answering these questions, we follow the procurement practices of Philips.

Philips started in the mid-2000s with a worldwide sustainability programme for its global procurement organization.³ For this purpose, a standard was developed with regards to the requirements that suppliers should meet in the area of sustainability. This is no small thing if one realizes that more than 50,000 suppliers worldwide were involved in the programme. All suppliers were invited to participate through a formal letter sent by Philips' Chairman of the Executive Board. The letter encouraged suppliers to conduct a 'self-assessment' and to report the outcome of this self-assessment to Philips. Next, Philips would conduct a similar audit using its own internal experts. For this programme more than 400 Philips' experts were trained and educated. Next, the results of the Philips' audits were compared with the results from the supplier self-assessments. Figure 12.4 shows the topics that were addressed in the nine-page Supplier Sustainability Audit Questionnaire.⁴ Differences between both audits were discussed and suppliers were invited to come up with an action plan to take corrective measures, which were periodically followed up by Philips' procurement organization.

In its audits, Philips focuses on sustainability and the way in which suppliers deal with issues such as environmental protection, labour conditions, safety, child labour, discrimination and diversity, the number of labour hours and the compliance with local labour laws. Apart from this, the auditors focus on the presence of banned substances. Attention is paid also to the suppliers' relationships with unions. Just asking suppliers to sign a declaration in which they declare to comply with Philips' environmental policies, like in the past, was not enough anymore. Many suppliers were, with their eye on future business, very much willing to put their signature without actually checking their operations against Philips CSR guidelines. For Philips' Executive Board this was no longer sufficient. The company wanted to ensure that suppliers were meeting its CSR requirements. Suppliers that did not meet these requirements were dropped from Philips' suppliers list. As a result, the number of suppliers worldwide was reduced from 50,000 to about 30,000, most of whom are now in line with Philips' environmental policies.

³Philips included at that time three major business activities: Consumer Lifestyle, Lighting and Healthcare. Today Lighting is excluded from Philips's product portfolio.

⁴Refer to the full questionnaire at www.philips.com.

Figure 12.4 Philips supplier sustainability audit (overview)

Source: www.philips.com

A Labor

- a** Freely chosen employment
- b** Child labor avoidance/young worker management
- c** Working hours
- d** Wages and benefits
- e** Human treatment
- f** Non-discrimination
- g** Freedom of association

B Health and safety

- a** Occupational safety
- b** Emergency preparedness
- c** Occupational injury and illness
- d** Industrial hygiene
- e** Physically demanding work
- f** Machine safeguarding
- g** Dormitory and canteen

C Environmental

- a** Environmental permits and reporting
- b** Hazardous substances
- c** Waste water and solid waste
- d** Air emissions
- e** Product content restrictions

D Management systems

- a** Company commitment
- b** Management accountability and responsibility
- c** Legal and customer requirements
- d** Risk assessment and risk management
- e** Performance objectives
- f** Training
- g** Communication
- h** Worker feedback and participation
- i** Audits and assessments
- j** Corrective action process
- k** Documentation and records

E Ethics

- a** No improper advantage
- b** Disclosure of information
- c** Intellectual property
- d** Fair business, advertising and competition
- e** Protection of identity
- f** Community engagement

Environmental regulations become increasingly tighter, especially for European firms. The list of banned substances for European firms is consistently growing. Next, European consumer laws require firms to offer a full traceability of their products and product components. After some incidents where products that were imported from Asian manufacturing facilities contained hazardous materials, Philips started

its BOM-Check programme that would require suppliers to keep a record in a web-enabled Philips controlled database of their product constituents and origins. This database would secure Philips from future claims by consumers and NGOs based on banned substances.

Is the approach sufficient for the future? The answer, clearly, is 'No'. Philips, at this moment, has aligned its first-tier suppliers with its environmental policies. Today, Philips urges its suppliers to transfer their CSR policies to their (second-tier) suppliers and raw materials producers. In this area the company still has a long way to go.

How to drive CSR in supply chain relationships

What do large companies do to drive CSR in their supply chain relationships? What programmes do they have in place? And what actions are most effective? As CSR is still developing in many companies, these questions are not easy to answer.

Various CSR models have determined certain stages of maturity in the implementation of sustainability practices in the organization and its value chain. For example, Zadek (2004) has identified five stages organizations typically go through when developing a sense of corporate responsibility, as they move along the learning curve: defensive, compliance, managerial, strategic and civil. In addition, research from Van Tulder and Van der Zwart (2006) has distinguished between passive, reactive, active and proactive approaches of organizations to CSR. Based upon our own observations we propose an evolutionary model on the adoption process of CSR for organizations (refer to Memo 12.4). Understanding this model is important as driving CSR in supplier relationships often is one or two steps behind compared to the adoption of sustainability by the organization.

Memo 12.4

Stages in the adoption of CSR by organizations

Companies seem to go through a growth path in adopting tools and techniques in developing responsible procurement. This growth path is in line with the growth path that companies need at corporate level to adopt sustainability. However, as previous research shows,⁵ there seems to be a time lag between the adoption of sustainability at the corporate, i.e. company level and at the procurement, i.e. supply chain level. The following stages show how sustainability may be adopted in supply chain relationships:

Stage I: Denial. Here the company ignores and understates sustainability as a problem and sees no corporate responsibility for solving it. As the company has not integrated sustainability into its business

strategy, procurement is primarily price-driven in its supply chain relationships. Suppliers are selected based on the lowest price instead of on their sustainability performance. Supplier codes of conduct and business integrity codes are usually not present. The dominant view at board level is that adopting CSR will increase costs and complexity.

Stage II: Opportunism. Here the company expresses sustainability as a prime concern in its public advertising and marketing. However, the topic is not integrated into its business strategy and operations. Rather, it is an opportunistic attempt to



⁵Refer to Van Weele and Vivanco (2014).

show that they are contributing in some way. Hence, ideas and concepts covering sustainability are not cascaded down to the procurement department and supply relationships. Hence, there is little difference from the previous stage. The board starts to think about CSR as a concept to foster its customer reputation and to counter attack assaults from external parties. Individual, ad hoc CSR initiatives are highlighted and overexposed in company advertising and brochures.

Stage III: Compliance with the law. As the company faces some difficulties on sustainability issues with the external world, the board of directors becomes sensitive to the company's risk profile. Hence, business managers are instructed not to violate any social laws or environmental laws in the areas in which they operate. The first training and awareness programmes are designed at a corporate level, following a typical top-down approach. These programmes, however, have not trickled down to the procurement and supply operations yet. Occasionally, procurement may have introduced an integrity code to its suppliers. At this stage, procurement is still passive, traditional and cost-driven.

Stage IV: Sustainability as a driver for lower cost. At this stage, the board of directors has become aware that pursuing sustainability in its operations might drive down costs, fostering internal motivation for driving sustainability. When energy consumption is decreased overall, the company's carbon footprint will go down resulting in lower energy bills. Internally, energy saving programmes show great results and new solutions. As the company is aware of its high external cost, initiatives trickle down to the procurement department to pursue similar programmes in supply chain relationships. This leads to specific sourcing programmes aimed at reducing energy costs and carbon footprints at suppliers. In addition, procurement managers start to set up supplier sustainability audits to make suppliers comply with social and environmental regulations.

Stage V: Sustainability as a driver for product and business innovation. At this stage, the company has experienced that driving sustainability in its company operations leads to new products, processes and customer solutions. Imposing CSR requirements on incumbent suppliers changes their product and process solution space. In order to fit the buyer's smaller solution space, new products and process solutions are necessary. Suppliers are invited to discover better sustainable solutions to enable less energy consuming products and processes. As a result, supplier relationships change from being competitive to more collaborative. Suppliers are urged to transfer sustainability requirements to their next level suppliers. The board monitors progress on specific supply chain sustainability initiatives. CSR performance measures, next to traditional cost and savings measures, make up the procurement organization's dashboard.

Stage VI: From CSR to creating shared value. At this stage, sustainability is fully integrated into the company's business and supply chain strategy and operations. Over time, the change in the company's philosophy has led to a reduction in the number of supply chain relationships and towards more transparent and collaborative partnerships with suppliers. There is an active exchange of ideas and best practices between both the company and its key, i.e. business-critical, suppliers about how to grow profitable and even more sustainable business in the future, while at the same time reducing carbon footprint and creating value for all stakeholders. Procurement specialists engage with local and smaller suppliers, after thorough prequalification, to support them in adopting CSR practices and upgrading their sustainability performance. At this stage the company pursues a truly responsible procurement strategy.

As companies move from stage I to VI, procurement as a business function becomes more integrated and its focus shifts from traditional price-driven transactional procurement to becoming value-driven and collaborative.

When driving CSR in their supply chain relationships, some activities, tools and techniques are more popular than others (refer also to Figure 12.5):

- Supplier sustainability codes of conduct. Most large companies today have specific supplier sustainability codes of conduct in place. These need to support the general codes of conduct and business values of the corporation. Of course, these codes of conduct need to be signed by the supplier.

- Supplier sustainability assessments. Procurement professionals should check the degree to which suppliers comply with their sustainability requirements through supplier self-assessments and/or supplier sustainability audits that are performed either by the buyer or by an outside expert. Results of these audits are reported and corrective actions discussed.
- Supplier sustainability follow-up. Follow-up is required to ensure that corrective actions are put in place by the supplier. These actions are necessary since the experience was that many suppliers in low-cost countries were signing the code of conduct without any reflection on their operations.
- External sustainability standards. Supplier sustainability codes of conduct and audit questionnaires are usually based on external standards and norms. The most popular norms and standards are the United Nations Global Compact Principles (UNGCP), EcoVadis CSR Rating, the Global Reporting Initiative (GRI) and the Dow Jones Sustainability Index. Many companies also report using ISO 15001 as a standard to control and monitor supplier sustainability performance. In 2017 a new standard for sustainable procurement was introduced, ISO 20400. Besides these general standards, companies may use sector specific standards. Examples are Rainforest Alliance for sustainable food ingredients (Nestlé, Unilever), and the Forest Stewardship Council (FSC) for sustainable wood.

Figure 12.5 shows the programmes and methods devised by Van Weele and Vivanco (2014) to drive sustainability in supply chain relationships.

To improve supplier sustainability, companies may engage in different sets of activities. One set of activities is to train procurement and supply chain staff in sustainability auditing and capability developing programmes. Companies such as Nestlé, Unilever, Mars and FrieslandCampina have invested heavily in programmes aimed at helping local farmers in developing countries improve their product quality, operational efficiency and crop productivity. Part of these activities were the so-called supplier diversity programmes aimed at promoting businesses owned by ethnic minorities and/or women.

Of course, procurement managers need to report on the results that have been obtained from their supplier sustainability programmes. Here, a wide range of KPIs are found in practice. Important measures are the percentage of suppliers that signed the supplier sustainability code of conduct, the percentage of spend that is sourced sustainably and the number of supplier sustainability audits that were conducted. Next, measures may reflect actual carbon emission reduction in the supply chain, reduction of energy use, reduction of waste, number of casualties/injuries of workers and number of supplier code of conduct violations.

Although a lot of progress has been made in driving CSR in supply chain relationships, the incidents at the beginning of this chapter show that there is still a lot of work to be done. Issues that should be resolved are whether sustainability KPIs should be part of the procurement professional's personal dashboard and bonus system, how much responsibility a company should assume in driving CSR principles in its second- and third-tier supplier relationships, and that not all CSR actions are easy to measure and monitor. This hampers the follow-up of certain sustainability standards.

Figure 12.5 Programmes and methods to drive sustainability in supply chain relationships

Source: van Weele, A. J., & Vivanco, L. (2014). Corporate social responsibility: moving from compliance to value creation in value chain relationships. In C. Cordón, & T. Ferreiro (Eds.), *The value chain shift: seven future challenges facing top executives* (pp. 121–137). IMD Value Chain 2020 Project.

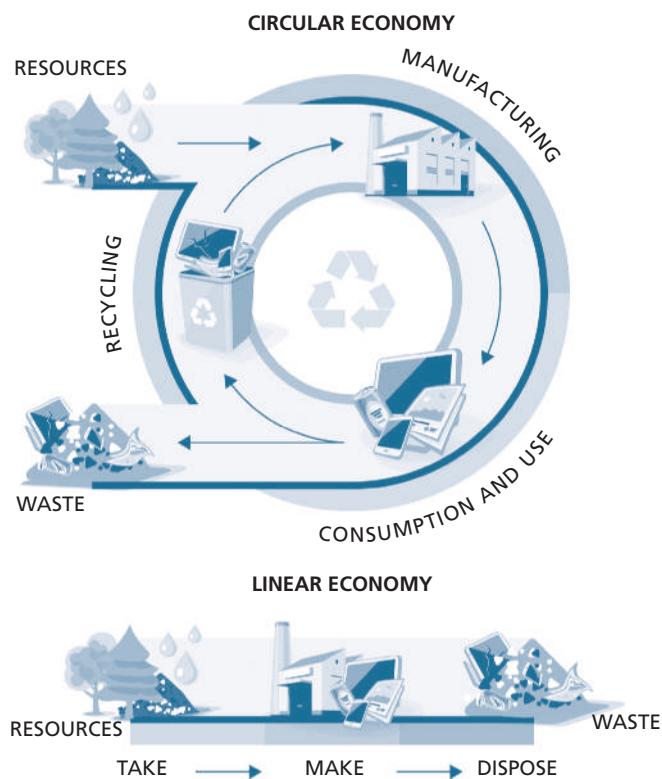
- **Stakeholder management:**
 - Corporate social responsibility committee
 - Stakeholder meetings on creating shared value (in water, nutrition, rule development, energy, environmental stewardship)
- **Supply chain sustainability strategy**
 - Programmes aimed at value chain carbon emission reduction
 - Support local buying in countries where sales are made
 - Water management plan across the supply chain
 - Secure long-term raw material supply
 - Product recovery programmes
 - Increase share of renewable energy
- **Supplier relationships**
 - Supplier quality assurance programmes
 - Supplier traceability programmes
 - Supplier compliance with local legal requirements
 - Supplier sustainability audits (self-assessment, external audits)
 - Supplier sustainability and integrity codes
- **Competence development**
 - Training buyers in responsible procurement practices
 - Supplier development programmes
 - Supplier productivity programmes
- **External standards**
 - Global reporting initiative
 - Dow Jones Sustainability Index
 - NGO Fair Labor Association
 - ISO 14001
 - ISO 20400
 - EICC code of conduct
 - FSC standard (wood, forestation)
- **Supply chain sustainability measures**
 - Supply chain carbon dashboard
 - Percentage of sustainable suppliers
 - Percentage of sustainable spend
 - Supplier code of conduct violations

Circular sourcing

The shift from shareholder focus to stakeholder focus is reflected in what is often referred to as the circular economy. The circular economy concept, which was originally developed by the Ellen MacArthur Foundation, assumes that raw materials, components and products are continuously reprocessed in order to meet the needs of the growing world population (refer to Figure 12.6). The circular economy contrasts the linear economy, where raw materials and components are turned into products which at the end of their life-cycle are burned, scrapped or wasted. The circular economy identifies

two different material cycles: the biological cycle, where residue materials after use return to nature, and the technical cycle, where technical components are designed in such a manner that they can be reused at the end of their life-cycle.

Figure 12.6 Circular economy model



The idea behind the circular economy is that economic value of products is sustained as much and as long as possible. Memo 12.5 provides an overview of the most important principles underlying the circular economy. Obviously, these principles have important consequences for procurement and supply chain management. Based upon a survey among 528 supply chain professionals, Gartner (2020) claims that 51 per cent of supply chain professionals expect their focus on circular economy strategies to increase over the next years.

As companies buy so many materials and services, circular sourcing seems necessary to close the value chain. Circular sourcing assumes that we only pay for functionality, rather than property, and that everything we buy from suppliers preferably is to be returned to those suppliers at the end of the product life-cycle. Next, circular sourcing is aimed at buying products and components that are made up of high contents of recycled materials. Circular sourcing prefers to buy products that are designed in such a manner that when they have reached the end of their life-cycle, they can be easily taken apart and the parts can be easily reprocessed. Examples of circular sourcing may serve here:

Marimekko, the Finnish home furnishings, textiles and fashion design company (www.marimekko.com), is one of the industry leaders in developing more sustainable

products and practices. In 2017 it set up a collaboration with start-up Spinnova aimed at developing and commercializing a new wood-based textile. With Spinnova's technology, wood pulp can be spun into textile fibre without regenerating, dissolving or harmful chemicals. The sustainability impact of this innovative textile fibre includes nearly 100 per cent less water use during production than cotton, no harmful chemicals being used and 100 per cent circularity. The Marimekko prototype outfits produced as part of the collaboration were introduced in February 2020.

In an effort to reduce some of the plastic waste it creates annually, Adidas (second largest manufacturer of athletic shoes and apparel after Nike) decided to design and develop a fully circular running shoe. The Futurecraft.loop is Adidas' first high-performance running shoe that is 'made to be remade'. The shoe was carefully designed in collaboration with manufacturing and recycling partners. Consumers can return their shoes when they are done, and then Adidas can recycle 100 per cent of these used shoes to create new running shoes. It took more than seven years of research, including developing new technology to build the shoes out of a single material with no glue or solvent. Market launch was in April 2021.

Philips set up a collaboration with Coolrec, the specialized waste disposal company of Renewi (UK–the Netherlands) in order to reprocess its vacuum cleaners and Senseo coffee machines. Philips needs specialized plastics for the manufacturing of these consumer products. These specialized plastics are often in short supply. Hence, the price of these plastics is subject to high volatility. Therefore, Philips came up with the idea of reprocessing the products that consumers dispose of. Consumers bring their vacuum cleaners or coffee machines to the waste depots of cities and municipalities. There, they are set apart and transported to Coolrec, where they are disassembled. Next, the specialized plastics are taken apart and sent to Philips to be reprocessed and used to produce new products.

Memo 12.5

Principles underlying the circular economy

The circular economy distinguishes between technical and biological cycles. The biological cycle encompasses the flows of renewable materials. Consumption only occurs in the biological cycle. Renewable (biological) materials are mostly regenerated in the biological cycle. The technical cycle involves the management of stocks of finite materials. Use replaces consumption. Technical materials are recovered and mostly restored in the technical cycle.

The three principles are:

Principle 1: Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows. This principle underscores that consumers should pay for the use of products rather than for the property and ownership. Car sharing is preferred over buying and owning a car. The use of a car should be charged and taxed, rather than buying and owning the car.

Principle 2: Optimize resource yields by circulating products, components and materials at the highest utility at all times in both technical and biological cycles. This principle relates to modular design for manufacturing, refurbishing and recycling to be able to keep technical components and materials circulating in and contributing to the economy.

Principle 3: Foster system effectiveness by revealing and designing out negative externalities. This includes reducing damage to nature, economies and geographic areas, and reducing externalities such as land-use, air, water, noise, pollution, carbon emissions and the release of toxic substances.

Source: Ellen MacArthur Foundation, www.ellenmacarthurfoundation.org



Circular sourcing has become part of new business models where a new product line is actually based upon recycled parts and materials. Here, the international manufacturer of carpets, Interface, may serve as an example. Through their 'Net-Works' programme, Interface manufactures carpet tiles which are made of old and abandoned fishing nets that are gathered by people on low incomes in emerging countries. Interface pays these people based upon the kilos of fishing nets collected.

Next, these fishing nets are transported using full container loads to their manufacturing sites in Europe, where they are transformed into carpet tiles. The carpet tiles are actually leased to B2B customers. At the end of the lease period, the carpet tiles are taken back and reprocessed by Interface. This example shows how a company actually applies circular economy principles to build a new business model that serves the interests of customers, society, nature and local economies.

Circular economic thinking and circular sourcing are currently just in their infancy. But, without doubt, they will develop fast for the benefit of the world, humanity and future business. As we expect, it will change the nature of traditional procurement into a more entrepreneurial one. Instead of negotiating for the lowest price, procurement professionals will be working with start-ups on finding circular materials and building and maintaining ecosystems and value networks to develop the circular solutions for the future.

Business integrity and ethics

Over the past decades, there have been many debates over the issue of integrity and ethics in B2B relationships. As companies become more dependent on each other, companies also need to have strict ethical principles and procedures. Trust can only be generated if procurement staff act in a consistent and reliable manner, and if they live up to their word.

However, few companies have explicit policies and corporate programmes on 'business integrity and ethics'. And when they have, the COVID-19 crisis showed that some companies overtake their values easily when their business is under threat. According to EY's *Global Integrity Report 2020*, 18 per cent of those surveyed claimed 'It is justified to pay bribes in order to survive as a company', compared to only 4 per cent in 2010. Further, EY's report shows that 94 per cent of Fortune 1000 companies redesigned their supply chains in response to COVID-19, which is seen as one of the largest threats to business integrity. Only 34 per cent of companies are very confident that their suppliers and partners abide by relevant laws, codes of conduct and industry regulations. What is especially worrisome is that respondents indicated 'Ignoring third-party misconduct' as the top unethical behaviour they would commit for personal gain. PwC's *Economic Crime and Fraud Survey 2020* shows that about 19 per cent of companies are dealing with procurement fraud. Respondents cited suppliers as the source of their most disruptive external fraud.

Based upon a dataset of 315 corruption cases, Kim and Wagner (2020) found significant market penalties for firms involved in corruption allegations. It also revealed that investors react more negatively to upstream (i.e. supply chain) versus downstream corruption cases, suggesting where firms must be most cautious. This shows that although it might be tempting for buying companies to 'cut ethical corners' or 'close their eyes' to misbehaviour in their supply chains, it is not a smart thing to do. Not surprisingly, leading sustainable companies show an increasing interest in integrity and ethical behaviour in their supply chains.

A buyer is exposed to many temptations which vary from Christmas presents sent by the supplier to their home address at the end of the year, to vacations which are offered disguised as a business trip to an overseas conference. In the international sales arena, lots of activities are undertaken to put the buyer in the most positive frame of mind about a possible purchase. The question, of course, is what can and what cannot be accepted from the supplier. In business, this question is not easily answered. Questions can also be raised on the side of the buyer as to how far it should go in a relationship with a supplier. In this context, the following questions should be addressed:

- How should confidential supplier (price) information be handled?
- Should we only use quotations if we are seriously considering requesting a firm bid from a supplier, or do we only use them to check our current supplier's prices?
- What is the maximum share that we as customers want to have in the supplier's turnover, in order to prevent excessive dependency on us?
- Do we always strive to have at least two suppliers (dual sourcing) or are single sources allowed in particular circumstances?
- How far do we go in negotiations with suppliers? Are we willing to buy at prices we know, for a fact, are not sufficient to cover the supplier's cost price?
- Are personal presents given by suppliers to company representatives acceptable?

To increase uniformity in behaviour towards the business community, a number of large companies have become explicit on their policies with regard to 'business integrity', explaining their company's business values and regulations on matters such as conflict of interest. As a part of these policies they have urged their procurement managers to draw up and subscribe to several rules of conduct for their dealings with suppliers. Rules of conduct have also been drawn up by the International Federation of Purchasing and Supply Management (www.ifpsm.org), which may serve as a guide to procurement managers who want to set up specific policies on this topic for their company. Some professional procurement organizations, such as the Dutch Purchasing Association (NEVI), have translated these guidelines into local professional codes of conduct (refer to Memo 12.6).

Memo 12.6

NEVI guide to procurement ethics

NEVI (the Dutch Association for Purchasing Management) and its members are aware of their corporate social responsibility towards customers and suppliers, but also towards the environment, society at large, and, of course, their company or organization. The following four core values apply:

- Business ethics. Procurement professionals shall be honest and dependable, and not cause others harm. Within all aspects of the procurement process, they act in good conscience, always speak the truth, so that stakeholders are never

misled. Confidential information shall never be revealed to third parties, unless legal or professional obligations require revelation of such information. Confidential information shall never be used for personal gain. Procurement professionals shall adhere to all legislation and regulations that apply to them, and refrain from actions that may discredit the profession. Procurement professionals shall respect other cultures and customs.



- Expertise and objectivity. When asked, procurement professionals shall always provide, where there are no legal objections or confidentiality obligations that impede this, correct information and endeavour to make the right decisions based on sound knowledge and experience. They shall show integrity under all circumstances, acting honestly and in line with professional standards. In order to be able to do the latter, procurement professionals shall stay abreast of relevant developments in their professional field. Objectivity is all about procurement professionals basing their judgement on facts instead of on prejudice or self-interest. They shall not be open to improper influencing by third parties, and avoid any relationships that may influence their professional and independent judgement in an undesirable manner.
- Open competition. This means: no collusion, offering all potential suppliers equal opportunities in bidding for an order, selecting suppliers based on objective criteria and preventing exclusive dealings.
- Sustainability. By this we mean that procurement professionals shall respect people and the planet in striving for profits: people, planet, profit.

Procurement professionals shall show integrity, always endeavour to act in an ethically correct fashion, and be open to learning and improving themselves, colleagues and the procurement sector at large. They shall specifically acknowledge the following four elements in their actions:

- 1** Legislation and regulations. Procurement professionals shall abide by all applicable legislation and regulations in all countries where they perform business activities. Business partners shall always be treated fairly and a deal is a deal, meaning that contracts shall always be honoured.
- 2** Personal interest. Procurement professionals always ensure business and personal interests are kept separate. Procurement decisions shall be made independently and objectively. Procurement professionals shall comply with anti-corruption legislation, meaning that they shall refrain from offering, promising, providing or approving in-kind personal benefits aimed at:
 - obtaining an advantage in business transactions
 - influencing a business relationship in an improper or prohibited manner

- compromising the business partner's professional independence.
- 3** Conduct towards competitors. Procurement professionals shall respect fair competition and with that legislation and rules that on the one hand enforce and stimulate competition and on the other prohibit collusion and price fixing.
- 4** Corporate social responsibility:
 - a** Forced labour. Procurement professionals shall reject any kind of forced labour, and respect the United Nations charters on human rights and the rights of children. They shall specifically endorse the Convention concerning the minimum age for admission to employment (Convention No. 138 of the International Labor Office, or ILO), and the Convention concerning the prohibition and immediate action for the elimination of the worst forms of child labour (ILO Convention No. 182). Whenever national regulations stipulate stricter measures, these regulations shall take precedence over international conventions.
 - b** Discrimination. Procurement professionals shall counter, within the boundaries set by current legislation and regulations, all forms of discrimination, and unfair and unequal treatment based on sex, race, disability, ethnic or cultural background, religion or world view, age, or sexuality in particular.
 - c** Treatment of employees. Within the boundaries specified by national statutory provisions, they shall protect employees and their health at work ... Procurement professionals shall respect, within the boundaries set by current legislation and regulations, employees' right of association. They shall stimulate lasting protection of the environment for current and future generations.
 - d** Dealing with confidential information. Procurement professionals shall see to it that trade and company secrets are being kept. Confidential information and confidential documents shall only be revealed to third parties or made accessible in other ways with express prior consent or by court order.
 - e** Social media. Procurement professionals shall be mindful of the interests of others when using social media, also when stating personal opinions. Based on their position, procurement professionals shall assess whether and what they can publish in a private capacity.

Source: NEVI, www.nevi.nl.

Summary

CSR has increased in importance in recent times. It now resides as a high priority item on the management agenda of today's international corporations for three reasons. First is the fact that raw materials have become more scarce. Second is global warming. These environmental changes require companies to use natural resources in a more prudent way. Finally, a reason may be the fact that business today is global, and global business, due to the international press and social media, has become more transparent and public opinion has become more powerful and therefore more important. An environmental or social scandal may quickly ruin a company's reputation which has taken years to develop. As a result, large companies feel the need to deal with social and environmental issues in a uniform way. Since suppliers are an important part of the company's value chain today, supplier relationships have become an important focus area of their sustainability programmes.

The basic idea behind CSR is to meet the needs of current generations without sacrificing resources to meet the requirements of future generations. The case of Mattel at the beginning of the chapter shows what may happen if a company is not careful in selecting its first tier- and second-tier suppliers. Because of the paint containing lead that was used by one of its subcontractors, Mattel needed to recall millions of products from its end-user markets and had to pay millions of dollars to do this. Even worse, its company reputation was badly damaged. This situation could have been prevented if Mattel had had an explicit policy with regard to 'people, planet and profit': the three pillars of CSR.

The SDGs focus on creating economic growth while respecting local laws, environmental regulations and labour conditions to meet the requirements of future generations. Just having a policy on these matters is not sufficient. Operational processes of suppliers need to be controlled and monitored for compliance. For this reason, procurement managers of large companies conduct sustainability audits of their suppliers. Suppliers are first invited to conduct a self-assessment, the outcomes of which are later compared with the audits conducted by buyers' auditors. Large manufacturers require the first-tier suppliers to transfer their environmental policies to their second-tier suppliers. In this way, these manufacturers intend to reach sustainable supply chains in the end.

Sustainable procurement will probably transform into circular sourcing over the coming years. The key characteristics of circular sourcing are that buyers will not pay for ownership or property, but rather for the use of products and equipment. Next, they will demand that at the end of the life-cycle products are taken back by the suppliers involved to be reused or reprocessed. Circular sourcing will also promote buying products with high contents of recycled substances (see the examples of Marimekko, Interface, Adidas and Philips). Increasing material scarcity will force companies to be more selective in disposing of waste and products. As the examples of Adidas and Interface have shown, waste and disposal can actually be turned into new products and business models that generate new revenues.

As companies become more dependent on their suppliers, supply chain integration becomes more of a challenge to them. Supply chain integration can only be built upon constructive, long-term supplier relationships. To be able to do so requires a fair degree of trust among the parties involved. Developing trust in business-to-business relationships

requires competent and experienced staff. Next, it requires consistency and reliability in the way the company staff and managers operate and behave towards external partners and the way in which commitments that have been agreed upon are met. This explains why issues such as 'business integrity' and 'procurement ethics' have met with great interest over the past few years. It is likely this topic will gain even more relevance in the near future. For procurement professionals it implies that they need to work according to the highest professional and ethical standards that have been laid down in explicit procedures and guidelines. The ethical code of the International Federation of Purchasing and Supply Management can serve as a guideline here.

Assignments

- 12.1** What are the reasons underlying CSR programmes of companies these days? What do companies mean by procurement with purpose?
- 12.2** What would you consider to be the most important elements of a socially responsible procurement programme?
- 12.3** What is the value of a statement made by a supplier that its organization is sustainable?
- 12.4** Under what circumstances would you feel that the following are allowed in procurement: (1) accepting gifts from a supplier, (2) accepting invitations for a dinner, (3) engaging in a personal friendship with a supplier sales representative, (4) extending the deadline for a competitive bid to one of your suppliers, and (5) giving the 'right of first refusal' to your current supplier?
- 12.5** Would you feel that integrity codes as used by some companies have the same relevance for procurement managers as for sales managers? Discuss.

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Integrative Case III.1

Serving the customer at Joycies Products Ltd: from marketing to supply chain management

BY ARJAN VAN WEELE

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Introduction

The management of Joycies Products Limited (hereafter referred to as Joycies) faces some difficult problems. Being a successful marketer and producer of deli-food products, the firm is confronted with rapidly changing and ever-increasing demands from its customers. Of course, every manager at Joycies had witnessed the concentration tendencies going on in the retail sector with some concern. Now that the dust has settled after the merger of two large customers, the combined firm, Big Food Store (BFS), confronted them with seemingly impossible demands. In order to safeguard future business, the account team was recently informed that Joycies should meet the following demands: 12-hour delivery of products ordered to BFS's warehouses throughout the country enabling cross-docking and direct supply. Moreover, Joycies should take back all packaging materials. The food giant also requested a quality guarantee implying that Joycies would officially be responsible for all claims and costs related to bad quality and health problems arising from their products with BFS's consumers. Finally, it wanted all artificial ingredients to be replaced with natural products within a year in order to meet BFS's 'Top Fit' branded product range.

Willem Steekamp, Commercial Director at Joycies, reported his findings to the management team. He peered out of the window and sighed: 'This really is a mess we have got over there. This new Supply Chain Manager is really stirring things up. I am afraid this won't be the last of it. On the contrary, this example will be followed by a score of other customers who carefully watch Big Food Store's steps. Having been in this business for over 20 years now, I have never seen such outrageous targets. And I do not know how we are going to meet them.'

The other people in the executive room remained silent: everyone was aware of the average lead-time of three days, which Joycies barely could meet, and the many logistics problems that were reported. It was clear that the problem

could not be solved just by working harder or by putting pressure on the production organization or the logistics department. Kees Wanders, general manager, pondered about the situation. 'OK, this will not be a simple issue. Let us think about it for a while and discuss it during our next management meeting.' What should be done?

Joycies' history

Joycies is a successful marketer and manufacturer of bakery and food products. It was started in 1992 by a creative baker, Jan van den Bergh, at Alkmaar, the Netherlands, whose specialty was the manufacture of traditional but very tasty cookies and baked products. In 2016, the company's reputation was such that people would come all the way from Amsterdam to Alkmaar just to buy these cookies. Given the wide acceptance of his products, Jan started to open up new bakery outlets. In 1999, he managed 20 shops from where the home-made products were shipped twice a day. At that time, the bakery's manufacturing facilities were expanded for a third time. Given his ever-increasing workload, the management of the shops, including the hiring of sales personnel, was delegated to his wife (Joyce), after whom he renamed the company (Joycies Food Products). Being a true craftsman, Jan concentrated on the development of new products and varieties, and he experimented with new ingredients. This added to the range of products, and after some careful consideration, he decided to sell them through other bakery stores and retail outlets as well.

Through his personal zeal and zest and feel for quality, his love for his work and thanks to his wonderful wife, he was able to build a company which in 2010 had more than 400 employees.

At that time he decided to separate the sales organization and the manufacturing site (the latter was moved out of Alkmaar in 2005 when citizens of Alkmaar consistently complained about the constant smell of baked products in the air and the noise of the ever-stronger ventilators and other equipment). Both activities were transferred into separate limited companies, both reporting to a holding company.

Friendly takeover by Sherman Consumer Products

Jan was getting older, and so was his wife. They did not have any children and so a successor was not easy to find. In 2015 he was contacted by Sherman Consumer Products (SCP), who wanted to expand its foothold in the Netherlands and was looking for a healthy takeover target.

The deal was closed and Jan stayed on board for three consecutive years in order to help the new owner learn how to manage this type of business. New management came in and steered the company into another growth scenario. Since it decided to focus on the development, marketing, distribution and manufacturing of top-quality bakery products, it decided to sell all the shops to a retail chain who was primarily interested in the A1 locations in which the Joycies bakery shops were located. None of the shops survived as a specialty bakery outlet.

The cash flow generated by this decision was invested in new production equipment and new product lines. In 2015 the company manufactured not only a broad range of cookies and chocolate products but also developed a successful range of snacks and diet products. These products were manufactured on two major product lines. Most of the equipment was specialized to manufacture large runs. This enabled Joycies to produce a limited number of end products efficiently. Since 2005, however, when a new marketing manager was appointed, product variety increased considerably. Not only were two new product lines (diet products and snacks) introduced onto the market, but the variety in Joycies' traditional product range (cookies and chocolate products) also increased considerably. Moreover, batch sizes tended to decrease, which led to increasing pressure on the manufacturing department where more and more time was spent on cleaning machines and setting them up for the production of the next batch of new products.

Serving the market: facing concentration in the retail market

In 2020, Joycies had over 550 employees; 350 were employed in manufacturing. The rest were employed in research and development, marketing, distribution (Joycies worked together with a provider of specialist logistics services, Food Logistics Specialists (FLS), who operated a warehouse at the other side of the street from where the manufacturing plant was located), planning, administration and other staff activities.

The company was structured in a straightforward, though rather hierarchical way (refer to Appendix 1). Insiders would say that marketing was dominant in the company; through its creative though aggressive marketing campaigns, Joycies hold a strong brand image in at least three of the four product ranges. Marketing campaigns could not be copied easily, although some competitors occasionally tried this. Products were mainly sold to large retailer organizations and franchised bakery shops: 60 per cent of the sales turnover was achieved in the Netherlands, and the rest

in Belgium, Germany and the UK. Apart from marketing Joycies had a strong sales organization, where account managers (since 2018) dealt with large customer accounts. They discussed advertising campaigns, promotional actions (often tailored per retail chain), sales premiums and promotional support on a regular basis. Tailored actions were required in order to maintain or even expand shelf space.

In 2015, new information systems were adopted by most retail chains, enabling them to trace and track products from suppliers and manufacturers, through the warehouses/distribution centres to the retail stores. Through these detailed systems retail buyers were able to compare their suppliers on Direct Product Cost (DPC) and Direct Product Profit (DPP) per product per square metre. As a result, buyers shifted their focus from price and (gross) margin to total cost and net revenue. Detailed records were kept of supplier performance: some retailers sent their records on a monthly basis to their manufacturers, indicating transport efficiency, delivery reliability, quality problems, packaging problems, administrative efficiency, etc.

Willem Steekamp, acting as account manager for BFS since 2018, was often surprised about what these customers knew about his own organization. BFS required Joycies to link into its logistics planning systems in 2016, when it was agreed that Joycies would be responsible for the materials planning, scheduling and distribution. Based on min-max inventories, Joycies would check these every day and replenish each warehouse two or three times a week, based on the actual volume needed. This situation lasted until 2019 when BSF, during its '2020 Supplier Conference', explained that it wanted to reduce inventories considerably, and that suppliers needed to support this initiative. They were 'invited' to deliver within eight hours throughout the country. If storage was necessary, BFS would provide space, but would charge this back to the manufacturer. It was also said that BSF was studying the possibility of direct supply by its suppliers.

Logistics management and physical distribution at Joycies

Early in 2020, Joycies set up an advanced logistics planning department. Its major tasks were to monitor volume usage at the distribution centres of the so-called Key Accounts (through EDI computer linkages), check incoming orders from small accounts, translate the product volume into a detailed production planning, plan for production capacity, calculate the gross materials requirements and match these with the current inventories of raw materials and packaging, whereafter materials requisitions were sent out to the procurement department.

The procurement department would then place the orders for materials with their suppliers. Given the bulk character of most materials and components, orders were placed once or twice a month; products were, however, delivered daily or several times a week by most suppliers. For storage of raw materials Joycies had large tanks and silos available which served as a buffer stock.

Incoming orders from different customers were grouped until an economic lot size was reached for production. Then a production order and a corresponding production plan were made. The company now worked with two major product lines (one for cookies and chocolate products, and one for diet products and low-fat snacks).

Rapid growth in the variety of product lines in the past few years has made line and materials planning a difficult issue. Although the company tried several planning systems, it could not maintain the production yield it had experienced during the previous years. Changing production equipment and setting them up for another new batch happened almost daily. Production worked with three shifts; the introduction of a four-shift system was considered in order to meet the ever-changing and growing customer demand.

After production, products would be packed and directly moved to the warehouse of FLS on the other side of the street. Joycies' planning department would then issue a transport and routing schedule to FLS, providing information on where and when to ship the products.

In early 2020, it was clear that this structure was not working effectively. Logistics planning and production could often not meet the min-max arrangements made for the Key Accounts, leading to discussion with the respective account managers who increasingly lost confidence in the manufacturing organization. The increasing number of orders from Small Accounts could not often be made within the promised lead-times. Although it was Logistics' basic principle to 'freeze' the production schedule for the coming three days, changes in mix and volume had become quite normal. This of course had a detrimental effect on production and logistics efficiency. On several occasions, half full FLS trucks were sent out, just to make sure that the customer got their products on time. In many of these cases customers would complain that they had only received a partial delivery.

Procurement and supplier relationships

Procurement reported to the production manager. It was responsible for supplier selection, conducting negotiations on annual agreements and other contracts, placing and monitoring

orders, and troubleshooting. Raw materials, components, pre-mixes and other ingredients as well as packaging were bought from over 400 suppliers, most of whom had been around for many years. Some of these suppliers were large conglomerates for whom Joycies only represented an average customer. For other suppliers (such as the pre-mixes and some flavours), Joycies was among the top five customers.

Materials were delivered based on purchase orders; most voluminous items were called off on a daily basis in line with the production schedule. Most products were bought in a traditional way from known suppliers. Some ingredients could be supplier specific: in those cases, Joycies would not have a detailed product description (just a listing of the major ingredients that would satisfy EU regulations on food safety and health). For most new end products no detailed specifications of ingredients were available. This often led to problems when incoming materials (based on a sample test by the laboratory) were rejected. It happened more than once that production felt the materials could still be used, whereas the laboratory and the quality department would order procurement to send the materials back to the supplier.

Given the fact that production schedules were changing at a daily rate, the procurement department had to change materials delivery schedules constantly. This meant cancelling orders one day, and chasing orders and placing rush orders the next. In order to achieve some stability in this process, it was decided three years ago to build extra storage capacity for buffer stock. This has eased the pressure somewhat. However, now there is the excessive demand from BFS to change to natural ingredients within one year. Beyond doubt, this would imply considerable work for procurement, since new suppliers needed to be found for these ingredients, while probably at the same time contracts with existing suppliers would need to be terminated.

Meeting the challenge of the future

Driving home, Kees Wanders thought about the situation. Meeting the challenges posed by BFS would be an enormous task and would probably not be done without some breakthrough decisions. He doubted whether the present hierarchical and functional structure on which Joycies' success had traditionally been based would be sufficient for the future. More teamwork within his organization would be required and probably also the reduction of the number of management layers. Marketing, planning, production, logistics and procurement probably needed to operate in a much more integrated way. But how? He decided to focus his thoughts on the changes that would be required in marketing, logistics and procurement first.

Based on these outcomes, he would consider the changes that would be required in organizational structure, systems and personnel skills.

He kicked down on the accelerator of his car. He wanted to get home early now. There was no time to lose!

Assignments

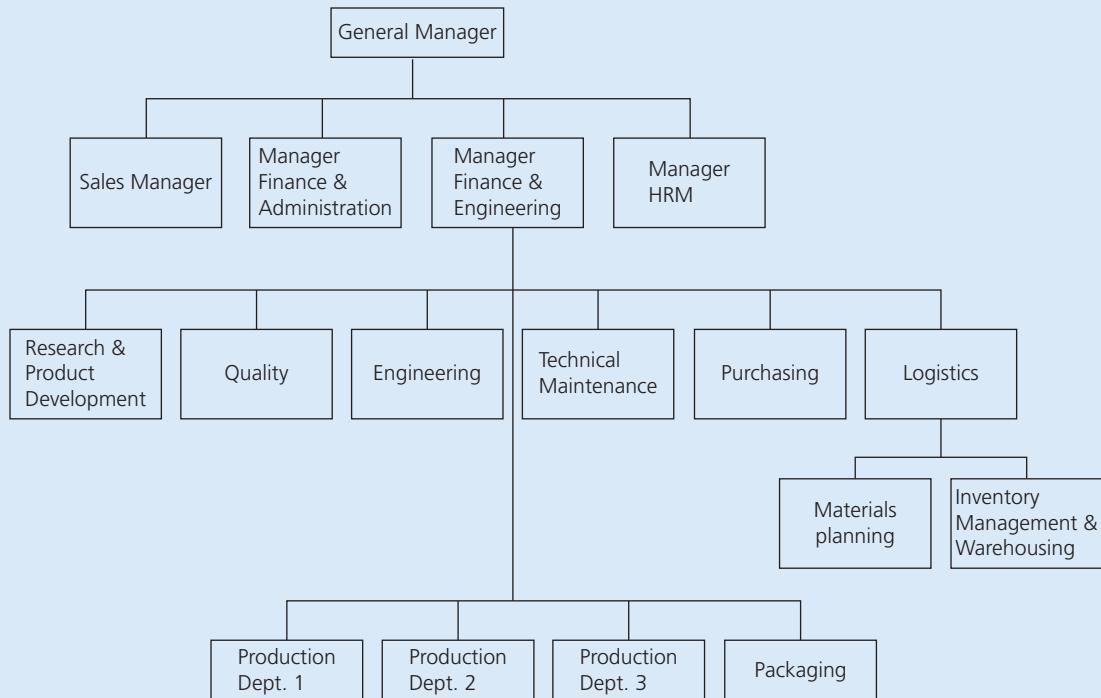
- 1** What do you regard as the most important problems in this case? Make a distinction between problems related to the following topics: (1) marketing and sales, (2) production and logistics and (3) procurement and supplier relationships.
- 2** Which measures for improvement would you want to put forward per topic?

- 3** How would you approach the change processes? How would you introduce your improvement measures?

As a presentation team you are asked to set out your findings in a punchy and well-designed presentation. You are also asked to summarize the results in the form of a concise paper (maximum 8–10 pages, not including appendices). When making your proposals, make use of the theory described in the textbook. It is possible that not all answers can be found in the text book. In that case, you will have to rely on your own creativity. Or better still, you are expected to consult scientific literature. You should add at least two academic articles (not more than five years old), with a link to the problem described in this case.

APPENDIX 1

Figure 1 Organization structure – Joyces



INTEGRATIVE CASE III.2

Legends Car Company: how to deal with supplier price increases

BY ARJAN VAN WEELE

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Jim Carson, manager of Legends Car Company (LCC) trimming and accessories category, put down the phone after his conversation with Newark Car Trimming Ltd (NCT). He pondered what to do. The situation was not easy. John Hankins, NCT's account director, informed him about a price increase for the components that his company supplied. These components included nicely designed and engineered aluminium car trims that would give a luxury image to LCC's high-end cars. John informed him that because one of his customers had cancelled a major contract, NCT was now suffering lower production volumes and hence a lower coverage of its fixed cost. As a result, the company would slide into a slightly negative financial position. NCT's financial director had given instructions to all sales account managers to increase prices to compensate for the lower overhead absorption and capacity utilization in the factory.

John had been careful in his conversation with Jim, saying: 'Look Jim, you know we cannot afford any financial loss in our situation. At the same time, I realize that I cannot pass on whatever price increase to you as I realize your position as well. We need to find a solution together. However, I need to have extra financial coverage from you in the range of about €200,000. Therefore, I need to increase my price from €19.61 per trim set to €22.46 based upon our volumes of 70,000 sets per year. I know it takes some courage to ask for a price increase from you. However, we have an excellent quality performance and flawless delivery of 100 per cent. We have never missed a shipment during the past years. Of course, when things get better over here, we will happily get back to the old price. But for now, I have to ask you for this price increase.'

Jim had known John for a long time. John would never appear unprepared in a discussion. He thought the request fair but also impossible because he would not meet this savings target as a buyer. And he wouldn't think of informing his boss about a price increase, as he was aware that everybody needed to contribute to dramatic cost savings at LCC. Newark's 14 per cent price increase was totally unacceptable given the overall savings targets of on average 5 per cent for LCC's total procurement spend.

Jim started to look at his supply base for trim sets. Currently, he had spread the risks among three key suppliers, i.e. Newark Car Trimming, Kennedy Car Components and Miracle Car Supplies. As the sales of cars are always difficult to predict, Jim had agreed in his supplier contracts on a certain bandwidth in terms of volumes. Contractually, Jim had secured supplies ranging from 250,000 to 350,000 trim sets. Next he had allocated carefully these volumes across the three suppliers. Traditionally, NCT was by far the best supplier in terms of quality, delivery and follow-up on incidental complaints. Miracle had the best price for sure, but fell down in terms of quality and was less reliable in terms of delivery. Moreover, the finish of its products sometimes needed some extra work by LCC production employees. Kennedy operated somewhere in the middle, with a somewhat higher price and a somewhat better performance than Miracle (refer to Attachment 1 for more details about the cost structure of each supplier). Tooling costs between the suppliers did not differ widely. These costs were paid for by LCC for the moulds that suppliers used to manufacture the trim sets. LCC remained the owner of the moulds and could take these, if needed, to any supplier they wanted.

Contracts were usually negotiated for three years, after which a new tendering contest was held to find the best and most competitive supplier. Jim calculated the maximum expenditure in the cases where minimum volumes were met or maximum volumes were needed.

He pondered what to do. Of course, the current contracts allowed for some flexibility in terms of the volumes to be allocated to each supplier. The contracts had been in place for 18 months and there were still another 18 months to go. One option was to reallocate the volumes, but to what extent? Of course, he should avoid solving the problem at Newark, while causing new problems at one of the other suppliers. A second option was to dramatically decrease the volumes at Miracle, as this supplier underperformed. He was irritated by the fact that he actually paid for performance he didn't get. The third option was to stick to the deal price for Newark and not budge an inch. But then he would probably lose a supplier at the end of the contract period. Newark was one of the best suppliers to work with and he wouldn't like to lose this connection.

Assignments

Consider the supplier cost data sheet in the attachment. Discuss and report on the following questions:

- 1 How would you solve this issue? What scenarios would you consider and which one would you prefer? Justify your answer.

- 2** Suppose that you go for reallocation of the contract volumes between the three current suppliers. How would you do that?
- a Answer your question by first calculating the break-even volumes of each supplier.
- b What additional volume would you give to Newark; what would be left for the other two suppliers?

- c Calculate the financial consequences for each of the three suppliers.

You may assume in your calculations that direct cost per product is calculated using the minimum contract volumes.

Attachment 1 Supplier data sheet

Supplier cost data	Supplier Newark	Supplier Kennedy	Supplier Miracle
Materials cost	€6.50	€7.25	€5.95
Labour cost	€3.35	€2.95	€2.45
Packaging	€1.50	€1.65	€1.25
Transport cost	€0.65	€0.55	€0.45
Direct cost/trim set	€12.00	€12.40	€10.10
Depreciation	€4.25	€4.68	€3.56
General overhead and expenses	€2.25	€2.75	€1.75
Indirect cost/trim set	€6.50	€7.43	€5.31
Total cost/trim set	€18.50	€19.83	€15.41
Profit %	6%	7%	5.50%
Price/trim set	€19.61	€21.22	€16.26
Tooling cost	€25,000.00	€27,500.00	€32,000.00
Contract volumes Minimum (No. of trim sets)	70,000	80,000	100,000
Contract volumes Maximum (No. of trim sets)	100,000	120,000	130,000
Actual volumes	75,000	100,000	110,000

INTEGRATIVE CASE III.3

Nespresso: creating shared value in the global coffee value chain

BY ARJAN VAN WEELE

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This case study has been developed for educational purpose and describes the challenges related to direct sourcing of commodities in an environment of increasing corporate social responsibility (CSR) and shared value chain thinking. Its contents are based on real facts and figures, studies and publications, which are all taken from public sources.

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Introduction

In the mid-2000s Nespresso was at a crossroads: while the demand for their high-quality coffee was rising more than ever, the supply of coffee had become more uncertain. To tackle this problem, Nespresso could either continue its traditional sourcing strategy by putting pressure on cost and suppliers to work more efficiently, or it could set out on a completely new course to secure its future coffee supply by creating long-term partnerships with its suppliers and share supply chain management risk. The procurement department needed to make a difficult decision. Both options had their pros and cons, but wouldn't it be safer to just continue its traditional sourcing strategy, as buying at low prices and controlling raw materials costs was so important for Nespresso's continued success?

Raw materials cost savings were an important performance indicator of the Nespresso sourcing organization. However, what would be the long-term consequences of current sourcing practices, which were aimed at trading off international trading houses to secure the best possible price? Would this sourcing strategy enable Nespresso to buy its coffee in sufficient quantities and stable quality grades? It was debated in the press that Nespresso primarily went for profit and prestige, while it ignored the well-being and interests of its important, but low-income coffee growers. As a result of this press exposure, Nespresso's consumer image was affected negatively. Against this background, the Nespresso sourcing organization decided to explore alternative ways to source its coffee. In 2003, it started to

implement an innovative sustainable sourcing programme. However, as the programme developed, it came across more and more challenges to solve.

Major shifts in global coffee supply and demand

Until 2003, Nespresso – a Nestlé brand – was a growing coffee roaster that positioned itself differently from Nestlé by focusing on the premium consumer segment. It sourced its high-quality coffee through global commodity traders such as ECOM and Expocafé. There were three reasons why Nespresso was forced to rethink its sourcing model in 2003. On the one hand, its sourcing strategy was felt to be too supply driven. Until the beginning of the 1990s, the coffee market was a controlled market regulated internationally through the International Coffee Agreement (ICA). However, in 1999, the ICA failed to set new export quotas and as a result it collapsed, which is why the coffee market has opened up since 2003. Soon, through the heavy involvement of national governments in new coffee-producing countries such as Vietnam, a worldwide oversupply of coffee emerged. This important change in the global coffee supply structure resulted in the coffee crisis of 1999 to 2004, which lowered the price of coffee tremendously while reducing export earnings significantly.

The crisis had many terrible social, economic and political consequences. Coffee producers were exposed to unstable market conditions (volatile coffee prices), threats of climate change were increasing, while land to grow coffee became scarcer. This resulted in failing productivity and rising costs for farming, which trapped smallholder farmers in the persistent cycle of poverty; some were even forced out of business. This all created an uncertain situation in the supply of good quality coffee for both the smallholder farmers and the companies that depended on them. Nespresso, being a high-quality coffee brand, was confronted with ever-changing coffee quality grades. Moreover, the ever-changing raw materials prices were a direct threat to a consistent consumer pricing policy and company profitability.

At the same time, global coffee consumption went through a period of significant growth. Nespresso was able to profit from this market growth. Hence, its sales turnover showed a steep increase. But the company was unable to benefit from the situation of oversupply, since most supply would not meet its high-quality requirements. The company constantly had to struggle to buy the right kinds of coffee at the right volumes. And, of course, at the right price!

Oversupply in the coffee markets led to low and unfavourable prices, which had a detrimental effect on farmer incomes. Grassroots and non-governmental organizations (NGOs) such as Greenpeace joined forces in promoting the welfare of small producers in developing countries, accusing multinational companies such as Nestlé of unethical and unsustainable practices in their supply chain relationships. Multinationals were, rightly or wrongly, accused of violating local labour laws, slashing down forest land (i.e. rainforest for palm oil in Indonesia), and unethical practices in their supplier relationships. More specifically, NGOs took aim at the unjustified profits that were reported by these companies, accusing them of unfair distribution of profitability within the coffee supply chain. As they demonstrated, coffee farmers received less than 10 per cent of the coffee retail price. These repeated messages in the media raised the general public's awareness on these issues. As a result, consumers became more demanding about ethical sourcing credentials.

Nespresso had to increasingly deal with the pressure of these three forces. Mr Lopez, CPO of Nespresso at the time, was asked to look into it as the problems had direct consequences for his global sourcing organization. The issues he and his team had to deal with were as follows: How could Nespresso secure its supply of high-quality coffee in such unstable market conditions? How could Nespresso avoid bad publicity when they operated at large distances from the coffee growers? How could or should Nespresso improve the conditions in the supply chain? Was it possible to conceive of a sourcing model that would incorporate all of these factors? What would such a sourcing model look like?

While coffee is clearly profitable for food companies, it's very different for the coffee farmers themselves. The share of the retail value of coffee retained by the producer has fallen over the decades – in the 1970s, producers retained an average of 20 per cent of the retail price of coffee sold in a shop. Research during the coffee crisis found coffee growers received just 1–3 per cent of the price of a cup of coffee sold in a café in Europe or North America and 2–6 percent of the value of coffee sold in a supermarket. Following the recovery of coffee prices, farmers might now expect to receive between 7 and 10 per cent of the retail price of coffee. A recent study of the value chain for Kenya specialty coffee to the United States showed that some 87 per cent of the retail cost of roasted coffee is incurred at the roaster and retailer level, whereas the price paid to the grower represents around 7 per cent of the retail value. A similar calculation for mainstream coffee to Germany concluded that 84 per cent of the roast and ground retail value accrued to the roasting and retail segments. About 6 per cent went to

processing cum export costs and intermediaries, leaving about 10 per cent of the roast and ground retail value for the grower.

Nespresso's profile: turning a coffee trader into a marketing machine

Nespresso is an autonomous globally managed business of the Nestlé Group, the Swiss food and nutrients multinational, headquartered at Vevey, Switzerland. Although highly profitable, Nespresso is only a modest business unit within the Swiss conglomerate, with a sales turnover of a little over €5.4 billion. Nespresso was founded in 1986 and the Nespresso coffee concept of selling high-quality coffee through capsules was introduced in 1989. However, sales developed slowly. Today, the company employs over 13,900 employees in 82 countries. Its global market share (espresso coffee market) exceeds 30 per cent, which is far more than its competitors (e.g. Illy Café).

Three factors may explain its success. First, its consistent focus on enhancing the consumer coffee experience has led to new coffee machines that allow consumers to create espresso coffee at a fair price. It set up successful alliances with Magimix, Kitchen Aid and Krups that actually built the machines. Second, sales started to take off when the company opened up its online boutiques through the internet. Today, over one million people visit Nespresso's website on a daily basis. Third, in 2006, the company launched a highly successful global advertising campaign witnessing George Clooney ('Nespresso – what else?'), who became Nespresso's global brand ambassador. This campaign contributed significantly to Nespresso's brand recognition and prestige. As a result, the company posted an annual sales growth of 35 per cent on average. In 2012, Nespresso's product assortment included 19 aromatic profiles of grand crus for the consumer market and 8 aromatic profiles for the B2B market. Nespresso has always been sensitive to the environment. It introduced its capsule recycling programme as far back as 1991.

Nespresso's mission is to enable anyone, (consumers and enterprises), to create the perfect cup of espresso coffee. Besides the capsules, Nespresso also designs Nespresso machines and provides personalized services. Nespresso's business model is built on three key growth drivers:

- create the highest quality grand cru coffees for consumers and club members
- create long-lasting consumer relationships with consumers and other customers
- create sustainable business growth.

How to source a successful coffee marketing formula

Sourcing at Nespresso is of strategic importance. First, the company sources about 80 per cent of its total sales turnover. Important categories that are sourced are raw materials, packaging, ingredients and technology. Understandably, raw materials are of particular importance, since these are at the heart of the product. In the early 2000s, Nespresso pursued a mediated sourcing model. At that time, it sourced its massive coffee volumes through independent intermediaries, i.e. coffee trading houses, such as ECOM and Expocafé. Traditionally, these trading houses have a strong foothold in coffee-producing countries, buying coffee in different grades in large volumes from coffee co-operatives. The trading house acts as an agent for local co-operatives and large coffee millers and exporters. They consolidate the demands of large Western importers and source the right volumes at the right quality grades. In a few cases the trader will buy the coffee beans directly from small farmers with whom it has built relationships. Next, it assumes full responsibility for the downstream supply chain from the moment of transport of the coffee to the processing plants of (local) manufacturers. These manufacturers roast the coffee and distribute it to the importers, who grind the coffee, package, brand and ship it to retailers and other outlets.

With the question of the executive committee still fresh in his memory, Mr Lopez concluded that given the changes in the environment, the mediated sourcing model was probably no longer suitable for Nespresso. As he saw it, this model made Nespresso too dependent on the sourcing practices of the large intermediaries, since it did not allow Nespresso to control the practices in the supply chain to meet the challenges at hand. He found the Fairtrade Organization was on his side having confirmed the power of the traders in its report (2012). Essentially the report concluded that: 'Four trading companies – ECOM, Louis Dreyfus, Neumann and VOLCAFE – control around 40 per cent of global coffee trade'. In the mediated sourcing model Nespresso had little or no control regarding the origin, the price levels and the quality of the coffee that was supplied through its intermediaries, since there were no direct relationships with the farmers. Nespresso would not be able to improve sustainability practices and stimulate farmers to make improvements in their operational practices. The traders were not interested in doing so; in fact, all of these companies were strongly financially driven. If prices in one country were more attractive than in another, they would simply move their volumes to the lower cost country. It was no secret that the biggest profits were made at the traders compared to other partners in the coffee value chain. As a result, Lopez

and his sourcing specialists decided to embark on a sourcing model that was totally new to the coffee business. This model became known as the direct sourcing model.

Sourcing model redesign: from mediated to direct sustainable sourcing

Based upon these considerations, Mr Lopez and his staff pondered about designing a new sourcing model for Nespresso. Companies like Toyota and IKEA, which had long-term sourcing relationships, served as a source of inspiration. It was decided to go for a model allowing Nespresso to deal directly with the coffee growers. This would mean that gradually most intermediate organizations that Nespresso had dealt with for such a long time, needed to be bypassed. The basic idea underlying this plan was that as Nespresso was able to select its suppliers itself, it could build personalized relationships with them and transfer knowledge to improve farmer practices. Nespresso would motivate its coffee growers by paying them a premium over the market price. This direct sourcing model would allow Nespresso to have a much larger control over its supply chain, which was felt necessary to improve farmer productivity and quality, and increase supply chain transparency. However, the transformation to this direct sourcing model had some important implications for Nestle's sourcing organization. One of the challenges was how to engage with all the different farmers in coffee-producing countries. Next, specific expertise on how to produce and grow coffee was required.

Figure 1 provides a comparison of the direct versus the mediated sourcing model.

Getting to the basics: how to secure supplier quality for coffee?

In order to implement the direct sourcing model, Nespresso needed a company-wide programme. Therefore, Mr Lopez and his staff initiated Nespresso's AAA Sustainable Quality Programme in 2003. The aim of this programme was to foster both quality and sustainability in all supply chain relationships. Therefore, an innovative farm assessment and support programme was developed (Goodbrand.com). Core elements of the programme were:

- 1 Certificates: Nespresso developed a proprietary standard to assess social and environmental standards on coffee farms. This was done in close association with the Rainforest Alliance.

- 2** Premiums: Nespresso paid 30–40 per cent above the standard coffee market price; this would amount to about 10–15 per cent above coffees of the same quality.
- 3** Partnering: Nespresso aimed at developing long-term relationships with coffee farmers to improve farmer productivity and decrease crop diseases.

Figure 1 Differences between direct and mediated sourcing

Key difference between direct and mediated sourcing	Potential consequences for sole sourcing (Cooperation with one supplier)	Potential consequences for dual sourcing (Cooperation with two supplier)
<i>Selectivity:</i> Direct sourcing allows buyer to pick suppliers better matched to their needs.	Direct sole sourcing leads to higher sourcing profits.	-
<i>Egalitarian allocation:</i> In mediated sourcing, cost minimization leads to a more egalitarian long-term allocation of business between suppliers.	Direct sole sourcing provides better supplier incentives for cooperation to one of the two suppliers and worse incentives to the other.	Mediated dual sourcing provides better incentives for the critical supplier.
<i>Limited exposure:</i> In any sourcing period, mediated sourcing can limit exposure to opportunistic behaviour.	Mediated limited exposure retains a substantial amount of the flexibility of dual sourcing due to the potential rerouting of flows.	Mediated limited exposure strategies are easier to enforce than dual sourcing strategies.

These elements were considered crucial for implementing the direct sourcing model in the coffee sector. As some managers argued: 'In order to maintain levels of excellence while increasing quantity, Nespresso and its farmers had to become genuine partners' (nespresso.com). In a network of local and global partners, Nespresso supports the farmers by providing training and technical assistance and sometimes financial support to improve product sustainability and farmer productivity. As a result, both costs and quality are much better controlled. Premium prices appeared to be a great motivator to farmers to co-operate on Nespresso's direct sourcing model.

A problem which occurred when thinking about how to improve coffee quality was what standard to select? Several standards were discussed. Finally, it was decided to take the so-called AA standard as a point of departure for Nespresso's quality programme. This standard was used as a hallmark of coffee quality for the best coffees in Kenya. Growers understood this standard and could work with it. However, together with its partner, Rainforest Alliance, Nespresso invented a third A to the AA coffee standard that represented economic, environmental and social sustainability. Part of this third A was the protection of the quality of water and continuous improvement respecting the farmer's own priorities and opportunities. Respecting local circumstances appeared to be key to the success of the programme. This became clear when Nespresso studied the obstacles that farmers in different coffee-producing countries had to deal with that prevented them from investing in sustainable production methods. One of these obstacles was

the high price volatility that farmers were confronted with which made them highly uncertain about their future and which prevented them from making long-term investment.

From quality improvement to Ecolaboration

However, the Nespresso AAA programme did not totally silence the criticism of the grassroots organizations and NGOs. In 2005, Nespresso was criticized for its sourcing practices in Ivory Coast. Nespresso experienced that working with formal certification programmes in developing countries was far from easy. First, it learned that a certified product that is not profitable will not be sustained for very long. Having acquired the Fairtrade label was only a first step; it needed to be followed by actions to make the product more profitable for all stakeholders. Farmer income and product profitability appeared to be a greater concern than sustainability. Next, Nespresso was criticized for its single focus on coffee. Since packaging created a large part of the product's carbon footprint, Nespresso also needed to work on more sustainable packaging solutions. As one manager put it: 'Nespresso had started to work on its coffee supply chain but, five years on, stakeholders did not want to hear about coffee until more tangible aspects of their system, especially packaging, had been addressed.' Here the challenge emerged: how to make sustainability a leading principle in all parts of the Nespresso organization; and how to make sure that sustainability became really embedded in Nespresso's strategy and business operations.

In order to address these issues, Mr Lopez scheduled a board meeting. Here he argued that his direct sourcing strategy should not be only a concern for the procurement department. In fact, sustainability should be a concern underlying all company activities. He was able to convince his fellow board members. As a result, the executive committee of Nespresso decided to review the company's sustainability programme. Hence, it launched the Ecolaboration plan to create a wide platform within Nespresso. The idea of Ecolaboration is to create value for all Nespresso stakeholders building on the Nestlé principles of 'Creating Shared Value'. As one of the directors stated: 'With Ecolaboration we try to create a proprietary platform to share our objectives and commitments with our partners and stakeholders. The involvement of all stakeholders was considered to be a key factor of the programme. Ecolaborations shows the importance of this new way of working to all its employees.' Important objectives underlying this programme were:

- to source 80 per cent of its coffee from its AAA Sustainable Quality™ Programme and Rainforest Alliance Certified™ farms
- to put systems in place to triple its capacity to recycle used capsules to 75 per cent
- to reduce the carbon footprint required to produce a cup of Nespresso by 20 per cent.

Nespresso's management felt that these challenging objectives would never be met if the company were to go it alone. Strong partnerships with external partners and strong bonds with key stakeholders were necessary. As a result, Nespresso teamed up with a score of companies and institutions, ranging from grassroots organizations and NGOs (such as Fairtrade and the Rain Forest Alliance), global financial institutions and other companies to secure knowledge transfer. An example may serve here: the partnership with Fairtrade, where Nespresso has committed to sourcing a growing proportion of its coffee from Fairtrade certified co-operatives. Fairtrade said of this partnership: 'The partnership unites Fairtrade's deep experience in building strong, democratic farmers' organizations with Nespresso's AAA Programme, which has proven impact in helping farmers improve quality, sustainability and productivity, as well as contributing wider social and economic benefits' (www.fairtrade.net). This statement shows the growing recognition of Nespresso's long-term efforts to foster productive supply chain relationships.

Nespresso and shared value

With its initiatives Nespresso is a prime example of shared value thinking, which was introduced in the academic world

by Porter and Kramer (2011). According to these authors, Creating Shared Value could transform global value chains by focusing on six issues: (1) energy use and logistics, (2) resource use, (3) distribution, (4) employee productivity, (5) location and (6) procurement. 'Nestlé redesigned procurement by working intensively with growers, providing advice on farming practices, guaranteeing bank loans, and helping secure inputs such as plant stock, pesticides, and fertilizers. Meanwhile, Nestlé's reliable supply of good coffee grew significantly.' Porter fully endorses the sourcing model of Nespresso when he states:

Embedded in the Nestlé example is a far broader insight, which is the advantage of buying from capable local suppliers. Outsourcing to other locations and countries creates transaction costs and inefficiencies that can offset lower wage and input costs. Capable local suppliers help farms avoid these costs and can reduce cycle time, increase flexibility, foster faster learning, and enable innovation. Buying local includes not only local companies but also local units of national or international companies. When firms buy locally, their suppliers can get stronger, increase their profits, hire more people, and pay better wages – all of which will benefit other businesses in the community. Shared value is created.

Porter subscribes to the advantages of the direct sourcing model for a company such as Nespresso. In addition, Porter emphasizes the positive effect of the diversity strategy Nespresso uses. In every coffee region, Nespresso builds agricultural, technical, financial and logistical firms and capabilities to enhance the quality and efficiency of local production. These clusters make the procurement practices more effective.

However, the direct sourcing model is not without its concerns. As a Nespresso spokesperson stated: 'By cutting out intermediaries we assume more risks ourselves.' Nespresso controls every phase and every parameter from production to the coffee in the cup using strict selection criteria regarding quality. However, a challenge still remains of how to measure the progress and the real impact of such programmes as Nespresso Ecolaboration. 'The impacts of coffee growing are not so well understood. That is why we are investing in a solid, and integrated and long-term measuring and reporting programme for our sustainability performance, particularly in the coffee countries of origin.' How to assess and measure the environmental effects on firm and partner performance? To address this question, Nespresso designed a tool for the Assessment of Sustainable Quality (TASQTM). This tool would need to stimulate farmers to execute more sustainable agricultural practices.

In order to manage and share the data with its partners, Nespresso launched its AAA Sustainable Quality™ database, which gathers information about sustainability that is then shared with coffee farmers. This database helps them to better plan for the future. The SQ system allows the company to tailor its support for individual farmers' needs. Next, it provides a global overview of the Ecolaboration programme implementation and the adoption of sustainability best practices by farmers.

Another concern is that the scope and reach of Ecolaboration is limited. Aggregate sales of sustainability initiatives such as Ecolaboration represent less than a few per cent of total coffee sales. Its scope and impact on the global coffee market seems rather small. For its continuity it is important that other companies follow and adopt Nespresso's sustainable sourcing practices. However, will these competitors do so? Some competitors challenge and criticize Nespresso's high price strategy. As Andrea Illy, Illy Café's CEO, stated:

The well-known growth of the Fairtrade movement is only the first step toward sustainability, since the fair trade will continue no matter what the quality of its product. My triple concern is, first, that higher prices do not always mean higher value and quality; second, that producers looking for ad hoc certifications have to manage higher costs that spread throughout the supply chain; third, that sustainability does not always last, so that, in the long run, if the fair-trade requirements are not met, the market (i.e. producers) might go back to the previous business model very quickly.

Even at Nespresso some executives are not convinced of the long-term sustainability of the programme. As Jérôme Perez, Head of Sustainability at Nestlé Nespresso SA, says:

Although Nespresso is working hard to set up a monitoring and evaluation system and aims at continuous improvement, the question remains – with this perfect storm of challenges – will we still have a sustainable

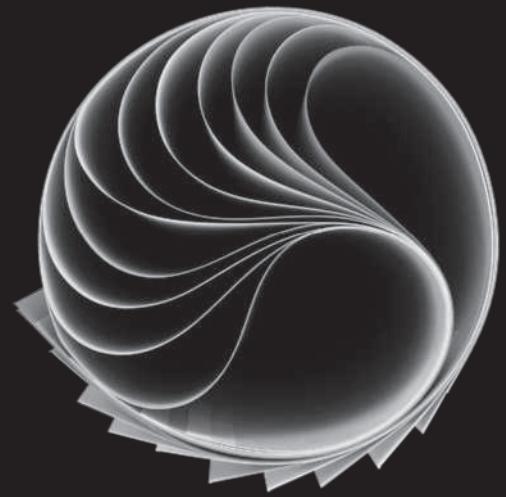
supply of coffee in twenty or even thirty years' time, and what do we need to do to make that happen: for the farmers, for Nespresso, and for coffee lovers everywhere?

Assignments

- 1** What is the current status of Nespresso and its Triple A programme? Did the company meet its ambitions and objectives? Why?
- 2** Success factors. Would you consider Nespresso a successful example of sustainable sourcing? If so, why?
- 3** Direct sourcing vs mediated sourcing: many coffee roasters are still using the mediated sourcing model. What are the advantages and disadvantages of mediated sourcing? In which sector would it be profitable? What factors are decisive for choosing between a direct or mediated sourcing model?
- 4** Long-term sustainability: one of the challenges for the Nespresso Ecolaboration Programme is its long-term sustainability. What is your opinion of the future success of this programme? What should Nespresso do to secure long-term success of the project?
- 5** Monitoring and evaluating: another challenge is the monitoring and evaluating of programmes such as Ecolaboration. What KPIs would you suggest to report on social progress, community involvement, sustainability and climate control?

Reference

- Porter, M.E., & Kramer, M.T. (2011). Creating shared value: How to reinvent capitalism and unleash a wave of innovation and growth. *Harvard Business Review*, 89(1–2), 62–77.



Enablers

- 13 Organizing procurement**
- 14 Procurement systems**
- 15 Managing procurement performance**

SECTION IV

13 Organizing procurement

Learning objectives

After studying this chapter you should understand the following:

- The major tasks and responsibilities of procurement and how to organize these.
- How to get organized for procurement in multi-unit and single-unit companies.
- Which criteria to use in deciding between centralized and decentralized procurement.
- The most important job profiles in procurement.
- The competencies procurement professionals need to do their job.

Introduction

Let's start with answering the question: what is an organization? Organizations can be defined as *social entities* (group of people) *executing activities* in a structured way (e.g. procurement processes) aimed at realizing a set of *shared goals* (e.g. procurement savings) in a way that takes the *organizational context* (i.e. supply market) into consideration and *adapts* to it when needed (Axelsson, Rozemeijer & Wynstra, 2005). Changes in the role of procurement will normally require changes in the procurement organization. For example, more effective and efficient organizational structures might be needed to support procurement's growing set of responsibilities (Ates, Van Raaij & Wynstra, 2018). Also, procurement organizations need to be agile and flexible enough to cope with increasing supply market dynamics and supply chain volatility.

As the case study shows, fierce competition in the construction industry caused Skanska Sweden, a global construction company, to turn around its procurement organization. Key decision-making on strategic commodities was centralized, and framework agreements for key commodities were negotiated. The more strategic role of procurement within Skanska led to some drastic changes in the way project managers needed to operate. Instead of every individual project manager dealing with purchases on a project-by-project basis, project managers now have to accept the idea of using the framework agreements that were prepared by Skanska's procurement experts. Skanska buyers needed to move away from their operational and transactional tasks into more strategic tasks. In order to be able to perform these tasks effectively, higher demands were imposed on them in terms of communication with the project managers and senior management. New digital tools, such as e-sourcing and e-procurement systems, supported this major change initiative.

This chapter discusses the major changes which companies are experiencing nowadays in restructuring their procurement organizations. Also discussed is how to get organized for procurement. In particular, the question of how to define primary procurement tasks, responsibilities and competencies in the relationship with other departments will be addressed. Furthermore, this chapter will describe how to organize for procurement in a single and multiple business-unit environment. In this respect, the relationship between procurement and internal users, on the one hand, and logistics and supply chain management, on the other, are discussed. Next, some time is spent on the issue of centralization/decentralization in procurement and the issue of procurement co-ordination. Finally, some important job profiles and competencies in procurement are presented.

Case study

Building blocks of change

For the construction industry, the message is clear. While other industries have continuously reduced prices for products and services while maintaining margins, the construction industry has been increasing prices without any corresponding improvement in profitability. At Skanska, the Stockholm-based multinational construction contractor, transforming and developing supply chains is at the heart of a long-term strategic initiative that reveals huge potential.

With thousands of construction projects per year and a significant spend volume in Sweden alone, it would be expected that Skanska would leverage procurement volumes as a matter of course. This is being done today, but at the beginning of this century no systematic efforts were made to improve and develop procurement practices. The reason for this lack of focus lies in the nature of the industry. A building project, be it a road, a bridge or a building, is essentially a local undertaking where the project manager on the spot and their team make all the decisions.

Realizing the potential of leveraging volumes, Skanska launched a major supply chain initiative some years ago. Part of the initiative was a five-step plan to introduce electronic procurement, collaborative commerce with subcontractors, electronic sourcing, logistics and order/invoice matching throughout the company. The plan was first introduced in Sweden.

But any initiative implying change would meet resistance, particularly in the very traditional construction industry. 'When we started, our first challenge was to convince stakeholders that this initiative really was of strategic importance, that it wasn't just another new scheme from head office', says the procurement manager Mikael Sjölund.

His own reaction at being offered a job within procurement is a typical example. 'At Skanska I worked first as a production manager then as a construction project manager. Earlier, I was asked if I wanted to work with procurement. I thought "No, that is non-core, it is something I might do later in my career". A year later I was asked again and I accepted, because the management team made it clear that procurement transformation was a strategic necessity. It was such a challenge and had such potential that I really wanted to be part of it', he says.

His colleague, procurement development manager Sandra Petersson, also recalls the excitement of discovering the huge potential savings to be made from procurement transformation: 'Wherever we looked we saw possibilities. There were practically no common processes or tools in place, so we had an open field', she says. For instance, quality issues or delivery issues were difficult to resolve with suppliers because Skanska had no computerized systems in place to measure supplier performance. 'We would get information from a number of construction projects that there were such issues but had no statistics or easily accessible data on earlier supplier performance. That lack of information puts you at a severe disadvantage when it is time to negotiate new service-level agreements or prices', Sandra Petersson points out.

Changing procurement processes and introducing new tools also means creating a new organization. The procurement function at Skanska Sweden has gone from 15 to 100 people in five years, recruited both from within the company and from the outside.

'In the first wave, we hired 40 people. It was a case of profound belief in the value of transformation. You do not get the go-ahead for this kind of investment from management if they are not 100 per cent committed', says Petersson.

'Commitment from management is all very well, but you would not come very far if people in the construction projects do not feel concerned by what you are doing', she warns. 'You absolutely must involve all stakeholders. This takes time, sometimes much more time than you had planned for. That is the struggle: keeping up a long-term effort.'

'You just cannot shove new practices down people's throats; you must involve them in the new practices. That is why any change process will take time', Petersson reflects.

'For instance, some project managers fear that they might lose touch with market conditions if they rely on the frame agreement suggested by the head office commodity specialists. Therefore, you have to build trust by demonstrating that end-user feedback is taken seriously', says Sjölund.

'In four years, we have gone from 15 to 30 per cent of spend under management, defined as a purchase regulated by a frame agreement and processed through our electronic procurement system ... Compared to other industries this might not seem very impressive, but the sums involved are huge and the savings have been considerable', says Petersson. The next target is to have 50 per cent of spend under management within two years.

Source: various sources on internet and professional media combined with author interviews.

Procurement organization

Over the past 50 years, much research has been conducted on how to organize the procurement function (Schneider & Wallenburg, 2013). Since the early 1960s, the formal procurement organization (e.g. its structure, processes, policies) and procurement's interfaces with other functions have gained most research attention. Topics like leadership, culture, organizational learning, IT systems and digital procurement solutions have only become popular in the twenty-first century. Schneider and Wallenberg (2013, p. 152) conclude that 'future research will need to consider especially (a) how to support procurement's growing importance and enlarged set of responsibilities by (more) effective and (more) efficient organizational structures[; and] (b) how to deal with increasing market dynamics and volatility by providing procurement with the structural adaptability and flexibility necessary to support the company's overall market responsiveness and competitiveness'.

The formal organization (including position, reporting, authority, structure) of procurement is very much dependent on external business characteristics and internal situational factors (Bals, Laine & Mugurusi, 2018). For example, the buying of raw materials in chemical industries is often executed by a small group of specialists which reports directly to the board of directors. Some very large companies, such as Bayer, DSM and Dow Chemicals, have created a separate department or a separate business unit for this purpose. In small- and medium-sized enterprises, however, this could be the exclusive responsibility of the general manager. The same pattern can be seen for the buying of investment goods. Small- and medium-sized companies may buy these goods with only marginal interference by the procurement department. However, in large companies (such as Unilever, Heineken or P&G), these types of buying decisions are prepared by a corporate procurement department.

It is not uncommon to find the procurement of raw materials, commodities and production-related materials, on the one hand, and technical equipment and spare parts, on the other, to be organizationally separated. The organization of procurement, therefore, is highly dependent on the characteristics of the company, the type of industry and the characteristics of the products purchased (see also Trautmann, Bals & Hartmann, 2009).

Memo 13.1 looks at what happens when a cost reduction project is not aligned with the company's procurement organization.

Memo 13.1

When a corporate cost reduction project is not aligned with the current procurement organization...

Some years ago a leading European airline decided to embark on a major cost reduction project. A project structure was set up aiming to save the company about 6 per cent on its total procurement spend within two years. The project was driven by a corporate task force, reporting directly to the Executive Board. Its task was to initiate, co-ordinate and drive major costs down in projects in close collaboration with the procurement managers, residing in the company's business units and operations.

The top-down driven approach soon turned into a failure. When the corporate procurement team, supported by some external consultants, set out to gather basic spend and contract data, local procurement managers appeared reluctant to share this information. Their co-operation was crucial, since at that time the airline did not have a common, corporate-wide procurement information system. Procurement managers did not want to hand over their spend data and supplier agreements since they considered this to be confidential information that should not be shared with outsiders. Being loaded with work already, local procurement managers were unwilling to participate in the corporate initiatives.

When the project was analyzed, it appeared that many middle managers resisted the top-down approach too. Moreover, they criticized the well-funded corporate initiative when they felt that they were being deprived of the most basic resources. Next, they disapproved of the bonuses that would be provided to corporate sourcing staff in case of success, while leaving the local procurement managers empty handed.

Based on this analysis, the CFO decided to redesign the cost reduction initiative thoroughly. First, cost savings targets were imposed on individual business unit managers, making them part of the game. Next, more generous resources were provided to local procurement managers to free them up for the project work expected from them. Third, the reward structure and incentives were reviewed in such a way that local procurement managers would also benefit from their team's successes. The review appeared to be very effective. Considerable procurement savings, amounting to about €150 million, were realized within two years.



This example shows what may happen if corporate procurement initiatives are misaligned with the company's overall organizational structure (Van Weele & Rozemeijer, 2012). The airline's highly decentralized organizational structure, keeping every business unit manager responsible for bottom line results, did not coincide with a top-down driven corporate procurement initiative. Success could only be gained when local business and procurement managers were actively engaged in this exercise. Targets, roles, the allocation of resources and the reward structure therefore had to be reviewed.

When evaluating and discussing procurement organizations, most researchers and practitioners take the degree of centralization as their main perspective, resulting in three basic organization models: *decentralized* (all procurement activity, decision-making and

control is performed locally); *central* (all procurement activity and decision-making and control is performed centrally); or something in between, *hybrid* (all procurement activity and decision-making is co-ordinated and controlled in some way across all decentralized units). Research by Johnson et al. (2014) in the United States and Canada showed that the **hybrid structure** was the most popular organizational mode in procurement, accounting for 67 per cent of respondents. Respondents from the services sector favoured centralization of procurement more frequently than respondents from the manufacturing sector. Today, the hybrid structure is still the most popular model for procurement across the world. It is fair to conclude that procurement activities have become more and more co-ordinated, be it across procurement departments, business units or other functional departments.

When it comes to reporting lines of procurement executives within larger organizations, most **chief procurement officers (CPOs)** report directly to a top executive (i.e. president, chief executive officer (CEO), executive vice-president, senior vice-president/group vice-president, or chief financial officer (CFO)) and to a lesser extent to the chief operations officer (COO). It shows that over the past decades, procurement has become much more visible to the boardroom of large corporations. During the 2010s, a growing number of companies in the United States appointed a CPO or Chief Supply Chain Officer (CSCO) in their top management teams (Wagner & Kemmerling, 2014).

Hybrid structure

A combination of the centralized and the decentralized structure. Hybrid procurement operating models are not fully centralized, nor fully decentralized, but something in between: co-ordinated, federal or centre-led.

Chief procurement officers (CPOs)

Senior executive who is responsible for the management and co-ordination of the procurement function and its key processes and people throughout the organization.

Factors influencing the position of procurement in the organization

The organizational position of procurement is very much dependent on the view management holds towards the procurement function. When management considers the procurement function mainly as an operational activity, this will result in the procurement department being relatively low down in the organizational hierarchy. If management considers procurement to be an important competitive factor, however, and of strategic importance to the organization, then the procurement manager might very well be reporting to or even be part of the board of directors. Management's view of procurement is, to a large extent, related to the following factors:

- Procurement's share in the end-product's cost price. The higher this share, the more strategic the procurement function is considered by management.
- The financial position of the company. In times of severe financial losses, management will become more demanding on its procurement operations and procurement-related costs, resulting in a greater accountability being demanded.
- The extent to which the company is depending on the supply market. Supply markets with high concentration ratios usually get more attention from management.

In process industry, where goods flows are repetitive and supply chain efficiency is core, the procurement manager will often report to the supply chain manager. In technically oriented companies, however, which are confronted with rapid changes in product or process technology, procurement may report to the operations director. Table 13.1 shows how some of these factors may influence the reporting relationships of procurement managers.

Table 13.1 Factors influencing procurement's reporting relationships

	Procurement reports to			
	General management	Operations management	Supply chain management	Financial management
Procurement turnover ratio				
High	X			X
Low		X	X	
Technical complexity				
High		X	X	
Low	X			X
Logistics complexity				
High		X	X	
Low	X			X
Strategic impact				
High	X			X
Low		X	X	

Levels of tasks, responsibilities and authority

With regard to the allocation of procurement tasks, responsibilities and authority, three different levels may be differentiated: the strategic level, the tactical level and the operational level.

STRATEGIC LEVEL

The strategic level covers those procurement activities and decisions that influence the market position of the company in the long run. These decisions primarily reside under the responsibility of top management. Examples of decisions at this level are:

- Decisions to outsource activities which are currently executed by the company to outside suppliers, or vice versa (i.e. insourcing).
- Establishing long-term contracts with preferred or key suppliers (e.g. long-term procurement agreements, license agreements, partnership agreements, co-design agreements).
- Decisions related to category sourcing strategies (e.g. multiple versus single sourcing, global sourcing, out-/insourcing).
- Decisions to involve suppliers as partners in new product development, i.e. product innovation and new business development.
- Major investment decisions (in buildings, equipment, IT hardware, etc.).
- Decisions with regard to backward integration, i.e. decisions to participate financially in suppliers and/or startups in order to safeguard future supply of critical materials.
- Decisions related to policies concerning transfer-pricing and inter-company supplies.

This list illustrates the long-term, strategic impact that procurement decisions may have on the company's competitive position.

TACTICAL LEVEL

The tactical level relates to the involvement of the procurement function with defining the specifications of what needs to be purchased, supplier selection and contract negotiation. Examples of procurement decisions at this level are:

- Agreement on corporate or annual supplier framework agreements.
- Preparing and developing value analysis programmes; programmes aimed at design review and product standardization.
- Introducing a cross-functional, cross-business category sourcing structure in the company.
- Adopting and conducting certification programmes for suppliers (including supplier audits) in order to improve the quality of incoming goods and materials.
- Involving suppliers to support the company's sustainability initiatives and strategies.
- Selection and contracting of suppliers in general and programmes aimed at supply base reduction in particular.

Decisions on these issues often have a medium-term impact (one to three years). They are cross-functional in the sense that dealing with them effectively requires the co-ordination and co-operation of other disciplines within the company (including engineering, manufacturing, logistics and quality assurance).

OPERATIONAL LEVEL

The operational level addresses all activities related to the ordering and expediting function. In general, the operational level covers all activities that are related to the requisition-to-pay process. This level of activities incorporates the ordering of materials, monitoring the deliveries, making payments to suppliers and settling quality disputes on incoming materials and purchased services. More specifically, the operational activities of the procurement function include:

- The ordering process, including release of orders corresponding to already concluded agreements with suppliers.
- All expediting activities related to released orders.
- Troubleshooting, i.e. solving daily operational problems on quality, supply and payment in the relationship with the supplier, in other words fire fighting.
- Developing routines for invoice handling and ensuring that proper payments are made to suppliers.
- The monitoring and evaluation of supplier quality and delivery performance.

Table 13.2 presents the relationships between the three defined task levels and a number of procurement activities.

Table 13.2 Relationship between the three managerial levels of procurement and some management positions

Task	Managerial level			
	Top management	Logistics / supply chain management	Procurement management	Sourcing manager / senior buyer
Strategic level	X	X	X	
Tactical level		X	X	X
Operations level				X

Organizational structures within procurement

This section describes in more detail the alternative structures on which to organize the procurement function. For this purpose, the discussion differentiates between multi-unit companies and single-unit companies.

PROCUREMENT IN MULTI-UNIT COMPANIES

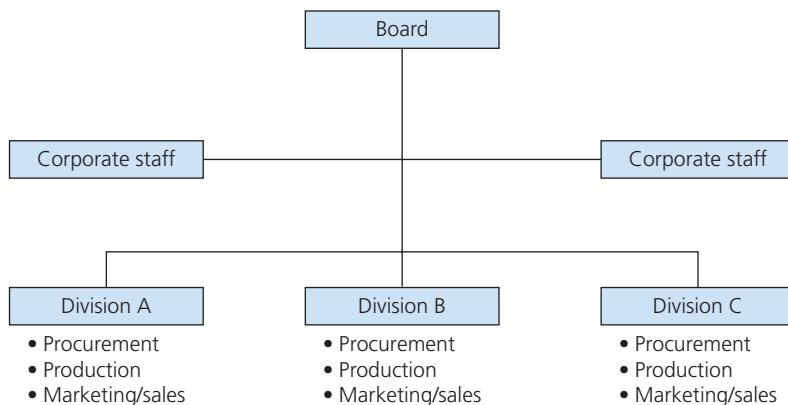
For the organization of procurement in multi-unit companies a number of alternative structures are available:

- decentralized procurement structure
- centralized procurement structure
- hybrid structure:
 - federal model
 - co-ordinated model
 - centre-led model.

DECENTRALIZED PROCUREMENT STRUCTURE

The **decentralized procurement structure** can be found in companies with a business-unit structure. A major characteristic is that every business-unit manager is responsible for their own financial results (refer to Figure 13.1).¹ Hence, the management of the business unit is fully responsible for all its procurement activities. One of the disadvantages of this structure is that different business units belonging to the same corporation may negotiate with the same supplier for the same products, and as a result arrive at different purchase prices and conditions. When supplier capacity is tight, business units can operate as real competitors to each other, fighting for the same supplier capacity.

Figure 13.1 Decentralized procurement organization structure (example)



Decentralized procurement structure A major characteristic is that all business-unit managers are responsible for their own financial results. Hence, the management of the business unit is fully responsible for all its procurement activities.

This structure is particularly attractive to conglomerates that have a business-unit structure, and where each business unit purchases products and services that are unique and markedly different from those of the other units. In this case bundling of common procurement requirements would provide only limited advantages or savings.

¹The term ‘business unit’ is used here as equivalent to operating unit or operating company. With this term the authors refers to a situation where the unit management is profit responsible and operates with a large degree of autonomy.

Centralized procurement structure
In this situation at the corporate level, a central procurement department can be found where corporate procurement managers operate at the strategic and tactical level.

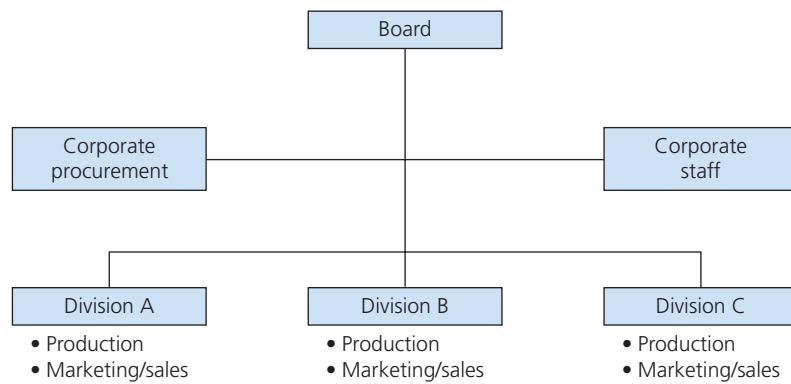
CENTRALIZED PROCUREMENT STRUCTURE

In a **centralized procurement structure** at the corporate level, a central procurement department can be found where corporate sourcing specialists operate at the strategic and tactical levels (refer to Figure 13.2). Decisions on product specifications are made centrally (often in close co-operation with a central engineering or research and development organization), and the same goes for supplier selection decisions; contracts with suppliers are prepared and negotiated centrally. These contracts are often multi-year agreements with preselected suppliers stating the general and specific purchase conditions. The operational purchase activities are conducted by the operating companies.

General Motors, Volkswagen and other car manufacturers may serve as examples of companies which have centralized their strategic and tactical procurement operations to a high degree. Sourcing is also highly centralized in retail companies. The main advantage of this structure is that through co-ordination of sourcing activities and the bundling of volumes, better value (both in terms of prices and costs and in terms of service and quality) from suppliers can be achieved. Another advantage is that it will facilitate efforts towards product and supplier standardization.

The disadvantages are also obvious: the management of the individual business unit has only limited responsibility and control over sourcing decisions. Often the problem is that the business-unit managers are convinced that they are able to negotiate better conditions on their own, and will not comply with the corporate framework agreements. Rather, they will favour doing business with their own, favoured suppliers. Overcoming contract compliance problems is for many corporate procurement departments quite a challenge.

Figure 13.2 Centralized procurement organizational structure (example)



This structure is appropriate in cases where several business units buy the same products, which are of strategic importance, from suppliers with a global presence.

HYBRID PROCUREMENT STRUCTURES

Hybrid procurement structures may have three different forms, which are the federal model, the co-ordinated model, and the centre-led model. Through these hybrid procurement models companies may avoid the rigidity of the centralized model and the fragmentation that is due to the decentralized model. All three models relate to

efforts aimed at combining common sourcing requirements from two or more business units (or organizational units) with the objective of improving the buying power of the company in order to reduce overall product costs or to improve the service obtained from suppliers. However, a lot of variety still exists in practice: depending on the type of commodity and/or sourcing category, co-ordination may be forced upon the business units or it may have a more voluntary character. Some examples are now described:

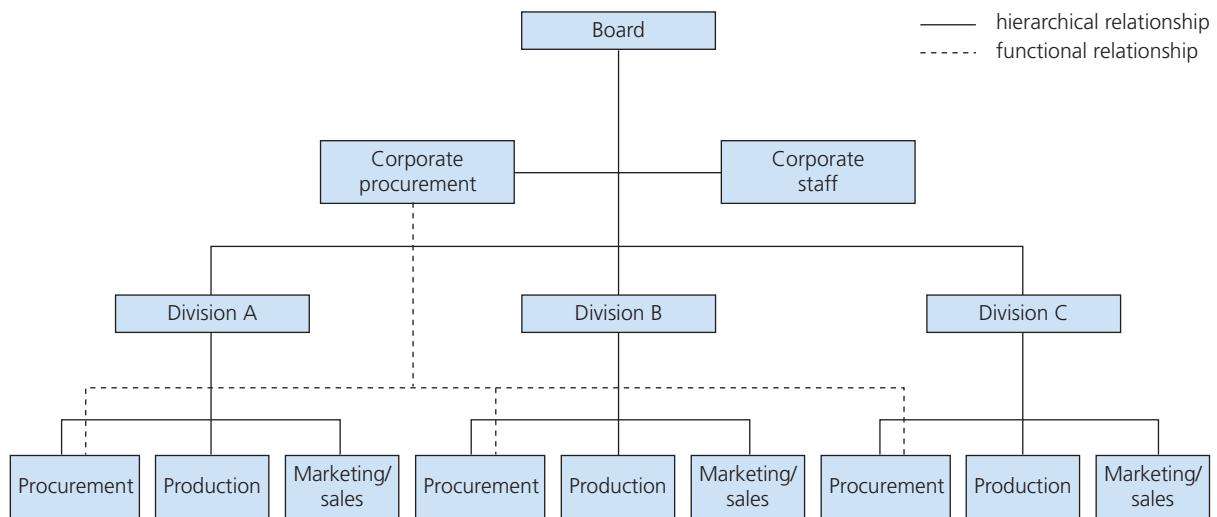
- Voluntary co-ordination. In this case a considerable exchange of information takes place between the procurement departments of the business units. Based on this data, every business unit is free to decide whether to take part in a (corporate) contract or to operate individually. Contracts are prepared by procurement co-ordination committees or corporate sourcing teams, in which the largest users are represented. A centralized, corporate procurement department is absent.
- Lead buyership. In this case the business unit that has the greatest volume for a specific spend category is made responsible for negotiating a corporate agreement with the supplier(s) involved. This lead-buyer collects all relevant data from all other business units and negotiates with the supplier(s). The individual business units then periodically release orders directly to the supplier referring to the contract conditions negotiated by the lead buyer.
- Lead design concept. The guiding principle underlying this form of co-ordination is co-design – the operating unit or division which is responsible for the design of the specific product or component (the ‘lead-house’) is also responsible for contracting all materials and components from suppliers. An example would be a division of a major automotive company responsible for developing a new diesel engine. After approval of the new engine, the technology is offered to the other divisions, which may incorporate it into their new models. Materials and components, however, are obtained from suppliers which have been approved and contracted by the ‘lead-house’ division. Suppliers are involved in discussions on development and design at an early stage, so that the buyer may benefit optimally from the supplier’s technical knowledge.
- Buying group. In retail, a much favoured co-ordination structure is the buying group (also referred to as consortium, co-operative, purchasing organization, purchasing alliance, or buying combination). Here, individual companies voluntarily bundle their spend volumes through a joint initiative, e.g. a separate company to benefit from economies of scale. These buying consortia are popular across many industries, most particularly in retail. EMD may serve as an example here. Founded in 1989 and headquartered in Pfäffikon, Switzerland, EMD AG is the largest buying group in Europe and represents a cumulated consumer turnover of approximately €184 billion in Europe and Russia. The group cooperates in sourcing private label products globally, and negotiates agreements with producers of branded products at transnational level. By leveraging its members’ spend volumes, know-how and innovation on a global scale, EMD enables its 13 members (covering 250 grocery retail formats and over 20,000 retail stores in 20 countries) individually to improve their product and service offerings to the consumers in their respective local markets. Among EMD’s members are strong independent national food and non-food retailers such as: Groupe Casino, NorgesGruppen, Woolworths, Axfood, Dagrofa, Kaufland, Superunie and Markant.

So, co-ordination may occur at different levels of aggregation, i.e. at article level, at supplier level, at business-unit level, at division level, corporate level and at the inter-organizational level. The three procurement models that are referred to as hybrid procurement structures – the federal, co-ordinated and centre-led procurement models – are discussed next.

FEDERAL PROCUREMENT MODEL

In some major manufacturing companies, a corporate procurement department exists at a corporate level, while individual business units also conduct strategic and tactical procurement activities. In this case a corporate procurement department usually exclusively deals with the design of systems, procedures and guidelines for procurement. Furthermore, it may conduct procurement audits when requested to do so by the management of the business units (refer to Figure 13.3).

Figure 13.3 Federal procurement organizational structure (example)



The federal model consists of a small central core, is relatively flat and provides in a common procurement infrastructure for all autonomous business units. This infrastructure may consist of common sourcing processes, tools and templates, common IT systems and reporting, and joint HRM (i.e. competence development and recruiting). Given the fact that commonality in terms of procurement needs and suppliers is rather limited, there are very few corporate sourcing projects. No tactical procurement activities (e.g. category sourcing) are conducted by the corporate department; these all reside within the local procurement organizations. Apart from some voluntary co-ordination, most business units source their own needs. The way in which this is done, however, is likely to be similar among the business units. Business units are encouraged to use facilities, systems, tools and services that are provided by the corporate procurement staff. Usually, there is only a functional reporting relationship (i.e. dotted line) between the corporate procurement manager and the local procurement managers.

The federal model is based upon a few principles. The first principle is that procurement authority resides within the business unit, not with central staff.

Second, all investments made in procurement infrastructure should be beneficial to all business units, while each of these is not capable of making these investments themselves. Third, the overall governance model of the firm should stimulate and allow for common procurement policies and systems. From this description, it follows that this type of structure is in general limited to very large international companies with well-developed decentralized procurement organizations.

Memo 13.2 looks at how procurement can create corporate advantage.

Memo 13.2

Creating corporate advantage in procurement

The results from research (Rozemeijer, Van Weele & Weggeman, 2003) suggest that corporate procurement initiatives should be congruent with the overall level of corporate coherence and the level of maturity of the procurement function. Corporate coherence is related to the extent to which the different parts of the corporation operate and are managed as one entity. Major differences across business units in management style, vision, strategy, technology, culture and structure reflect a low corporate coherence. When differences in culture and structure exist across business units, the integration of the procurement function will be a significant challenge. Procurement maturity is related (among others) to the level of professionalism in the procurement function as expressed in the status of the function, the role and organizational status of the procurement departments, availability of procurement information systems, quality of the people involved in procurement and the level of collaboration with suppliers.

Rozemeijer et al.'s (2003) research suggests that when the procurement function is highly mature, companies will use a different and more advanced approach to manage corporate procurement synergy, than in the situation when dealing with low procurement maturity (refer to Figure 13.4). Decentralized procurement is most likely to be found in cases where both procurement maturity and corporate coherence are low. In such a situation, central co-ordination efforts will be hardly sustainable. In this situation, little homogeneity is expected in specifications across business units. However, there are opportunities to realize procurement synergy through exchanging information on supply markets, suppliers and prices by using voluntary working groups.

In cases where both constructs are high, a centre-led structure has good chances of success. In such a structure cross-functional/cross-business teams conduct co-ordination activities with active support from the business units, while strongly managed by

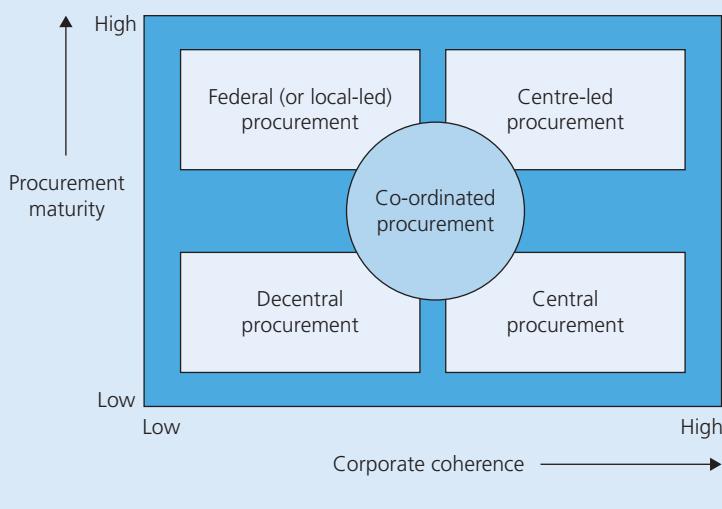
a corporate procurement staff. If both parameters have a medium value, a hybrid structure with both central procurement and voluntary procurement co-ordination activities is most likely to be found. Federal (or local-led) procurement consists of a small corporate procurement staff supporting a number of autonomous decentralized procurement units in their voluntary efforts to exploit potential synergies. The central procurement model represents a situation in which most strategic commodities are contracted from a corporate procurement department. The latter appears to be only feasible in organizations where procurement at the operating company level is hardly developed and corporate coherence is high.

Rozemeijer et al. (2003) do not believe that top managers do not add value by choosing a certain approach to create corporate advantage in procurement as such. They add value by creating a fit between the approach used to create corporate advantage in procurement, and the level of corporate coherence and procurement maturity. In practice, this is not very often the case. Rozemeijer et al.'s (2003) research revealed a number of initiatives that were not aimed at creating long-term corporate advantage, but at short-term cost reductions. In many of those cases external consultants were hired to drive corporate procurement cost reduction initiatives. Often, however, after the consultants had left, the companies gradually returned back to their former and less co-operative ways of working, not using the momentum to establish formal organizational mechanisms or other measures to create sustainable corporate advantage in procurement. This is probably related to the fact that the approach used by the consultants was not congruent with the level of corporate coherence and procurement maturity in these companies.

Source: Rozemeijer, Van Weele and Weggeman (2003).



Figure 13.4 Creating corporate advantage through procurement: five organizational models



CO-ORDINATED PROCUREMENT MODEL

This model consists of decentralized procurement departments that reside within the individual business units, but are supported by a small procurement staff at corporate headquarters. This staff oversees sourcing strategies and issues of concern for the entire firm, and it seeks sourcing opportunities for the firm as a whole, where individual business-unit staff may not be able to develop this macro view. A typical example can be found at Heineken, one of the world's leading beer companies, operating over 100 breweries and selling beer in more than 170 countries.

Raw materials such as barley, malt and hops are contracted for by the corporate procurement organization whether or not via lead-buyers or corporate buyers. However, strategic commodities such as glass bottles, system packaging, crown corks and cans are contracted by carefully selected cross-functional and cross-business category sourcing teams. A corporate procurement board, consisting of senior executives representing the most important business units, oversees, approves and monitors all corporate sourcing activities. Although bottom line responsibility resides within Heineken at the local business units, corporate interest (when in conflict with the interest of the local business unit) comes first. If an individual business unit does not want to comply with the corporate agreement for these strategic commodities it can only do so after having gained approval from the Corporate Procurement Board.

In this model the business units maintain their responsibility for the majority of their procurement spend. The advantage of this co-ordinated model is that the firm attains the corporate scope as well as the authority in dealing with suppliers, but it does not carry the full overhead cost that often goes for fully centralized procurement groups. This co-ordination model usually is to be found in corporations that operate major global brands and that have a high degree of standardization in their manufacturing operations and product structures.

CENTRE-LED PROCUREMENT MODEL

This hybrid model consists of a decentralized network in which corporate sourcing initiatives take place with the active support of fully empowered sourcing specialists from the individual business units. Standardization of sourcing processes, reporting, IT-systems and competence development are driven and led by the corporate centre. This organizational model today is common among large, international companies. It was first applied by IBM in the 1990s. As a result of enormous financial losses in 1992 when IBM's survival was at stake, the procurement function at IBM was reorganized. IBM's new procurement structure provided a consolidation of the needs for components and services for the entire company through one single point of contact (the global commodity team) for the supplier. Contracting was done centrally at corporate level. However, in all cases the operational procurement activities were decentralized.

Procurement components and other production-related goods are organized through divisional global procurement executives (refer to Figure 13.5). These senior managers are responsible for procurement, sourcing and supplier policy for a well-defined group of components. They report to the CPO and to their own business-unit manager. The business-unit managers meet with the CPO through various corporate business councils where procurement and supplier issues are discussed and decisions are made. The CPO communicates with every business-unit manager separately in order to match the corporate procurement strategy with the needs of the individual divisions and business units. This guarantees a thorough integration of the procurement and supplier policy in the organization. In this way IBM has been able to leverage its enormous buying power in combination with maximum flexibility.

Corporate category plans are submitted to the CPO and, next, to the procurement executive council. They are prepared by cross-functional commodity teams. These teams consist of professionals in product development, research and development, marketing, production, distribution and finance, together with procurement professionals. The leader of this team is a commodity manager, who does not necessarily need to be a procurement professional. The structure of the team is virtual because most professionals may work all round the world. They communicate through email, Skype and video conferencing. These commodity teams have the authority to select suppliers and contract with them for a specific commodity.

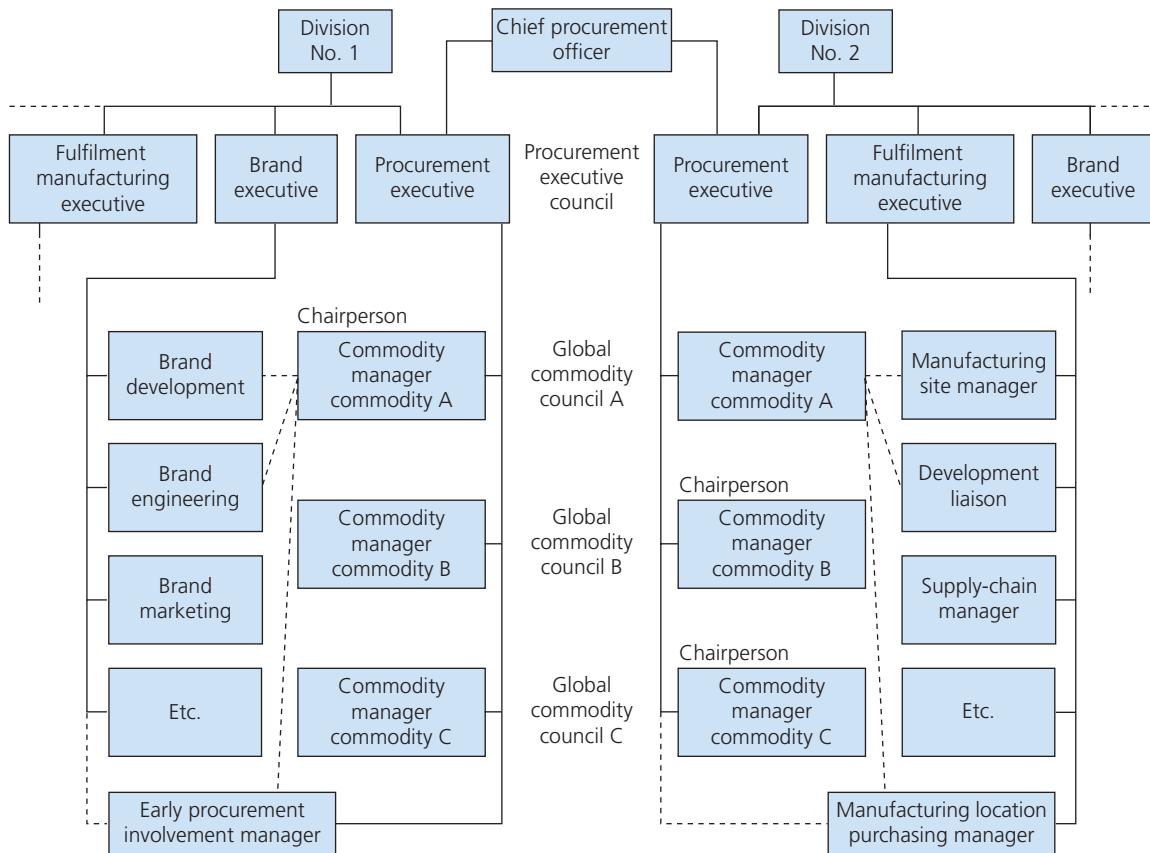
For procurement of production-related materials, IBM pursues uniform procurement procedures and ways of working all over the world. Defining procurement requirements, how to prequalify suppliers, how to select suppliers and what contract templates to use should be done following corporate rules and guidelines. Focus is on selecting suppliers which offer products and services at a world-class level and which have global presence. This leads to lower price and cost levels, higher quality, better service delivery and lower inventories. It also results in fewer suppliers and a growing commitment from these suppliers because the procurement turnover is spread over fewer suppliers. Therefore, more attention can be given to the relationship with an individual supplier in the value chain and a relationship based on continuous performance improvement can be developed.

Key factors to realize effective co-ordination are strong leadership, active involvement of management, formalized supplier relationship management, corporate category management and sourcing, cross-functional teams and standardization of logistics and delivery processes.

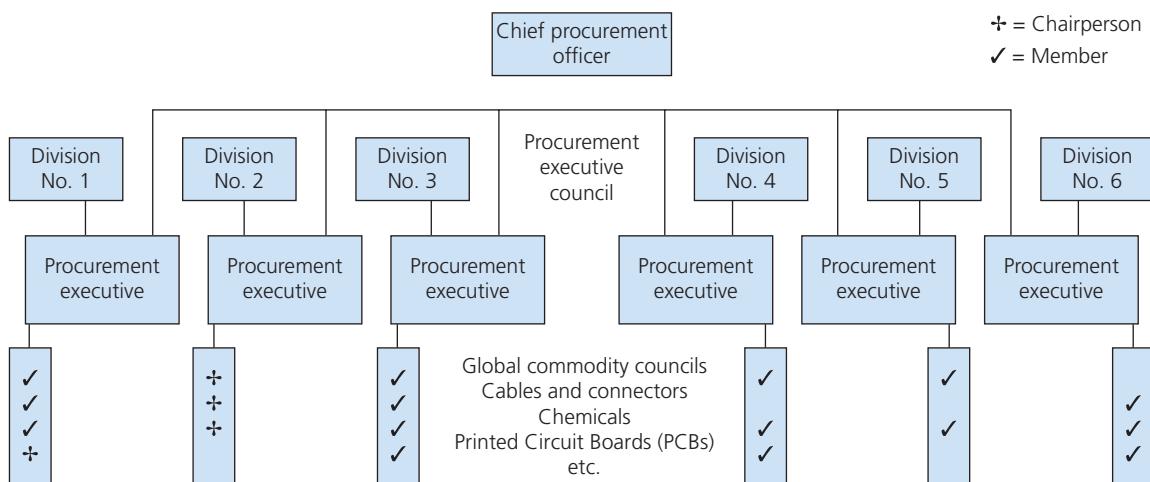
Figure 13.5 IBM's commodity team structure

Source: Van Weele and Rozemeijer (1996).

Procurement organizations company-wide must be aligned to ensure interlock of the procurement, development/design and fulfilment/manufacturing process



Enterprise-wide processes are interlocked at the procurement executive level for business strategy and 'virtual centralization' of commodity management



⊕ = Chairperson
✓ = Member

These hybrid models are, thus, somewhat more complex than the straightforward centralization or decentralization models. IBM was a pioneer in designing and implementing this complex organizational structure for procurement. Since it proved to be highly effective, many large companies have followed its example.

Memo 13.3 shows how Shell has organized its procurement activities. In this global company, strategic and tactical sourcing activities have increasingly been centralized; however, its operational procurement activities at the same time have become globally dispersed.

Memo 13.3

Shell's corporate procurement structure and global service centres

With over US\$352 billion turnover and 83,000 employees (2019), Shell belongs to the major global players in the oil and gas industry. Currently, it sells over 350 million litres of fuel to over 10 million customers daily, through its 43,000 retail service stations worldwide. Every day, 4 million barrels of crude oil are processed in over 30 refineries and 12 chemical plants. In order to get the products to the customer, Shell operates over 9000 km of pipeline and 7000 trucks, which travel over 1.7 million kilometres per day to take Shell products to its customers.

Shell's activities can be differentiated, like those of other large oil companies, into three major areas: Upstream, Downstream, and Projects & Technology. Upstream deals with exploration of oil and gas and production of the oil and gas from the field (on land or at sea). Downstream deals with refining crude oil and converting it into all kinds of oil and chemical products, processing semi-fabricated products through chemical processing plants, distributing products to customers and retail service stations, and selling the products to customers. Projects & technology focuses on the management of large capital projects and technology development and support to both upstream as well as downstream.

Until 2004 Shell operated its businesses using a regional structure. In 2004 it was decided to organize all Shell's Downstream businesses on a global basis. A massive reorganization eventually resulted in six business groups, which are today managed on a global scale:

- Manufacturing: including all refineries and chemical plants.
- Chemicals: including the distribution and sales of chemicals.

- Retail: including all 43,000 retail service stations.
- Commercial: including all business-to-business activities like lubricants, kerosene, bitumen.
- Trading: including trading and shipping of oil cargoes.
- Supply chain and distribution: including distribution and all support activities.

These business groups are supported by various functions such as HR, IT, Finance, and Contracting and Procurement (C&P).

Traditionally, like any other multinational company, Shell suffered from myriad business processes, systems and reporting procedures, which were different across regions, countries and business groups. The effort and cost involved in keeping all these processes, procedures and systems up to date were enormous. More importantly, in some cases, systems were not compatible. In order to get to, for example, consistent management reports, a lot of manual work was required.

Important steps in getting to the globalization of these business groups were the standardization and harmonization of business processes. For example, operations and safety procedures to be used in the refineries worldwide needed to be standardized. As a result, Shell Downstream embarked on its *Downstream One Program*, aimed at harmonizing Shell's business processes worldwide. Seven standard processes were defined, including OTC (offer-to-cash) and RtP (requisition-to-pay). Shell decided to manage processes and systems from a centralized point of view, to be supported by one ERP IT platform (SAP).



This ambitious programme, *Operation Streamline*, involved the offshoring of 9000 positions to six global service centres, including Finance, Customer Services, HR and IT. Today, a purchase order may be generated in a Shell sales office in Hamburg (Germany), be processed by the customer service centre in Krakow (Poland), whereas the supplier may be paid through the billing centre in Manila (Philippines), and the reporting on cash flows may be done by Shell in Chennai (India) (refer to Figure 13.6).

This example shows how interconnected and global Shell's (Procurement) infrastructure has become today. In order to be able to do this, all business-unit activities and country activities needed to be streamlined. Harmonizing Shell's procurement and supply processes globally was part of this.

Source: Operation Streamline: Harmonizing procurement processes and systems across the globe – The Shell story, unpublished case study by the authors.

Figure 13.6 Shell's international shared service centres around the world

Shell off-shored 9000 positions to six global shared service centres, including Finance, Customer Service, HR, IT, etc.



CENTRALIZED VERSUS DECENTRALIZED PROCUREMENT: SOME CRITERIA TO CONSIDER

The question as to what extent to centralize or decentralize procurement cannot be easily answered. Most companies balance between the two extremes: at one point they will have a centralized procurement organization, whereas some years later they may opt for a more decentralized procurement organization (Tchokogué, Nollet & Gobeil, 2011). The following factors or criteria are commonly used when deciding to opt for centralization or decentralization in procurement:

- Commonality of purchase requirements. The greater the commonality of the purchased products and services required by the business units, the more benefits can be obtained from a centralized or co-ordinated approach. This is why the buying of raw materials and packaging materials in large companies is often concentrated at one (corporate) location.

- Geographic location. When business units are situated in different countries or regions in the world, this may hamper co-ordination efforts considerably. In practice, there appear to be significant differences in trading and business practices between Europe, Asia and the United States. Even within a European context, significant cultural differences exist and some large companies have changed their co-ordination strategy from a global to a regional approach.
- Supply market structure. Sometimes the company is confronted in some of its supply markets with one or a limited number of very large suppliers. In such a situation, the power balance is definitely to the advantage of the supplier and therefore it makes sense to adopt a more centralized and co-ordinated procurement approach in order to arrange for a better negotiating position vis-à-vis these powerful business partners.
- Savings potential. Prices of some types of raw materials are very sensitive to volume. In such circumstances buying higher volumes may immediately lead to cost savings. This is true both for standard commodities and high-tech components.
- Expertise required. Sometimes specific expertise is required for effective buying, as in the purchase of high-tech semiconductors and microchips. Besides technology, prices are also strongly related to the laws of supply and demand. As a result, most manufacturers of electronics goods have centralized the buying of these products. The same goes for the buying of software and hardware.
- Price fluctuations. If commodity (e.g. fruit juices, wheat or coffee) prices are highly sensitive to the political and economic climate, a centralized procurement approach is favoured.
- Customer demands. Sometimes customers may dictate to the manufacturer which products it has to purchase. This is typical for the aircraft industry. These conditions are agreed upon with the business unit that is responsible for manufacturing the product. This practice will clearly obstruct any efforts aimed at procurement co-ordination.

In practice, these considerations appear to be decisive when deciding on buying products centrally or otherwise. The advantages and disadvantages of decentralization are shown in Table 13.3. For centralization, the inverse of the arguments may be used.

Over the past years, the topic of how to foster procurement synergies in a corporate environment has received much attention. Previous research reveals that the way in which corporations should leverage their procurement and supplier strategies is dependent on two factors, i.e. procurement maturity and corporate coherence. Differences in how companies deal with procurement co-ordination may be explained by these two variables.

Table 13.3 Some advantages and disadvantages related to decentralized procurement

Advantages	Disadvantages
<ul style="list-style-type: none"> ● Direct responsibility business units (or profit centre) ● Stronger customer orientation towards internal user ● Less bureaucratic procurement procedures ● Less need for internal co-ordination ● Direct communication with suppliers 	<ul style="list-style-type: none"> ● Dispersed buying power, lack of economies of scale ● No uniform attitude towards suppliers ● Scattered supply market research ● Limited possibilities for building up specific sourcing expertise ● Probably different commercial conditions across business units

PROCUREMENT ORGANIZATION IN SINGLE-UNIT COMPANIES

In a single-unit organization the issue of centralized versus decentralized procurement relates to the question as to what extent purchases need to be made through the procurement department. This refers directly to what authority should be assigned to the procurement department and, in general, depends on the following variables:

- Management's view towards procurement. This clearly affects the tasks, responsibilities and authority assigned to the procurement department.
- Information technology. This directly affects the possibilities for co-ordination of all materials-related activities within the company. Generally, implementation of contemporary ERP systems and digital procurement solutions will alter the traditional ways of working within procurement. In general, it will require better discipline and more systematic communication from procurement. As a result, procurement procedures need to be adapted and changes within the supply chain organization may even be necessary. Information systems also enable better spend analysis and management information. As a result of a greater transparency of procurement operations, its reporting relationships may need to be reviewed.
- Personal relationships. As in any organizational issue, personal relationships often play an overriding role in discussions on how to structure reporting relationships. If the procurement director is to report to the supply chain director, it is important that the latter shows some affinity with procurement, otherwise conflicts may easily occur.
- Total cost approach. A better understanding of some important supply chain cost drivers, such as inventory turnover, supplier delivery reliability, supplier reject rate, etc. will avoid a too-dominant price orientation. As a result, procurement decisions will become more cost-oriented instead of price-oriented, which has been the tradition in many companies. Knowledge of these additional 'performance indicators' often leads to a less autonomously operating procurement department and to a better integration with other business domains.

Based on these variables procurement's reporting relationships in a single-unit organization may take different forms:

- The fully integrated logistics structure. Here, procurement reports directly to the logistics manager at the same level as production planning and physical distribution.
- The partially integrated logistics structure. In this structure production planning and physical distribution report to the logistics manager, whereas the procurement manager reports to another senior manager (e.g. operations manager).

Adapting the procurement organization

Organizations are not static but evolve over time. The definition of organization given at the start of this chapter emphasized that an organization should take changes in the *context* into consideration and *adapt* to it when needed. Elsewhere some important contextual changes were discussed which may affect the procurement organization design. These changes can be divided into external and internal changes (Glock & Hochrein, 2011; Zheng et al., 2007). *External* changes are related to changes outside the company which cannot be influenced by the company, for example changes in supply markets, pace of technological development, supply chain disruptions and customer market growth/decline. *Internal* changes are related to changes inside the company. In most cases they result from rethinking

the value chain, i.e. the company's primary processes and its relationships with suppliers. Other examples are cross-functional alignment (Foerstl et al., 2013), corporate strategic initiatives, corporate coherence, digital technology in use and procurement maturity. All of these changes may influence the degree to which tasks, responsibilities and authority of the procurement organization are concentrated (i.e. degree of (de)centralization). However, these changes can also affect the level of formalization, specialization, participation and standardization within a procurement organization (Bals et al., 2018).

Formalization refers to the extent to which procurement tasks/roles are defined by various formal documents, rules, procedures and policies. For example, automation of operational procurement processes (i.e. implementing e-procurement solutions) often requires higher levels of formalization.

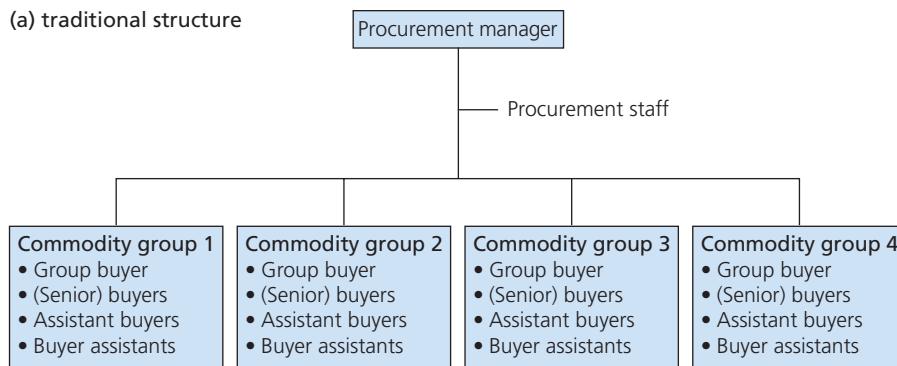
Specialization refers to the degree to which procurement activities are conducted by specialized teams, committees, departments and skilled personnel (for example, refer to Figure 13.7).

The degree to which procurement activities and routines are precisely defined refers to the level of standardization. Implementing a structured and uniform category sourcing methodology can serve as an example here.

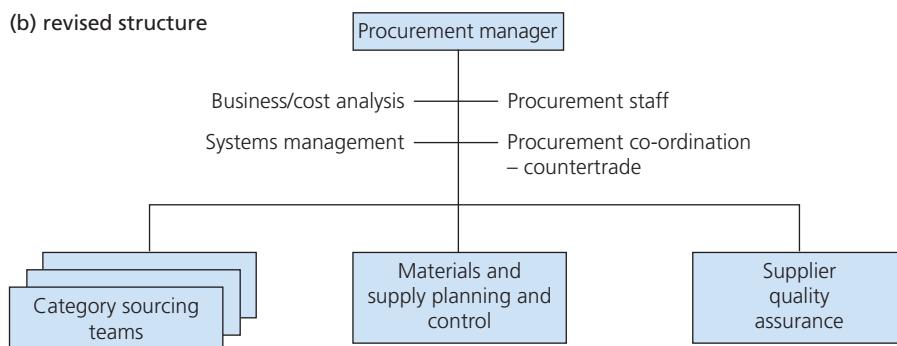
Participation indicates the level of involvement of procurement professionals and various other stakeholders in procurement decision-making. For example, cross-functional sourcing teams, supplier relationship management and innovation sourcing typically demand higher participation levels.

Figure 13.7 External and internal changes may lead to significant changes in procurement's organizational structure in a business unit's (a) traditional structure, (b) revised structure

(a) traditional structure



(b) revised structure



Staffing the procurement organization

People make up the very essence of high performing procurement organizations (Carr & Smeltzer, 2000). They make all the difference, not digital technology or advanced strategic sourcing tools and templates. The developments described elsewhere resulted in significant changes in the necessary knowledge and skills profiles required for people to perform their procurement job. Not surprisingly, finding the right people (recruitment) for procurement jobs is recognized by many CPOs as their main challenge. Let us take a look at the different procurement roles and job titles that can be found in most large companies:

- Chief procurement officer (CPO). Most large organizations have a senior executive who is responsible for the management and co-ordination of key procurement and supply processes throughout the organization. In most cases, this executive reports to the board of executives (i.e. top management team) or is a member of this board. Depending on the company and industry, the specific tasks of the CPO, and the authority and the reporting relationship of the position, may differ.
- Category sourcing managers. These lead the (global) sourcing teams that are responsible for developing and executing sourcing strategies for the company's product-related and non-product-related spend categories. Category sourcing teams may be cross-functional (for more complex categories) or functional, i.e. consist only of buyers (for commodities) (Driedonks, Gevers & van Weele, 2010).
- **Corporate buyers.** These are generally focused on very specialized tasks. It is their job to negotiate for large volumes of products and components (in the case of raw materials), and large investment projects and services (e.g. in the case of manufacturing equipment and computer hardware and software). Their counterparts at the supplier are often corporate account managers, who are highly educated and experienced. For this reason, corporate buyers preferably have a similar educational background, often at university level. They are responsible for developing corporate sourcing strategies for key commodities, which are prepared with the product specialists who reside in different parts of the organization.
- Procurement engineers. These procurement professionals, often working at a decentralized level, normally have a shorter planning horizon and a more operational task. As they have to meet and converse frequently with engineers and other technical specialists they require an adequate technical background, combined with commercial skills. In fact, procurement engineers are the liaison between the engineering and procurement departments in new product development programmes. Most of their time is spent discussing specifications, both internally and externally, conducting supply market research, selection of suppliers, and preparing and conducting contract negotiations with suppliers. As soon as the product has been introduced to the market, their product, supplier and contract files are passed on to the category buyer.
- Project buyers. The tasks of the project buyers are somewhat similar to those of the procurement engineer. However, the procurement engineer deals with production materials, whereas the project purchaser deals primarily with investment goods. For this job, a technical background at university level is required. Since buying investment goods is cross-disciplinary in nature, project buyers should be able to work in teams and have excellent communication and presentation skills.

Corporate buyers

Buyers operating at the corporate level with global sourcing responsibilities for key commodities. It is their job to negotiate for large volumes of products and components (in the case of raw materials) and large investment projects and services.

- Operational buyers or **materials planners**. Operational buyers or materials planners are responsible for materials planning and ordering. Based upon the materials planning, materials planners call off the materials required against the prearranged framework agreements. Furthermore, they manage inventory and monitor and control suppliers on their quality and delivery performance. For this job, a secondary educational level will be sufficient. Most important here are personal abilities, such as a good understanding of the company's operational processes, a service orientation and the ability to organize the work effectively. Apart from this, this job provides a good opportunity for future buyers to become acquainted with operational procurement as a first step.
- Business analysts. Business analysts (or sourcing analysts) support the category sourcing managers with detailed supply market information, product cost models and supply chain analyses. This position is often an opportunity for young graduates to get acquainted with modern procurement strategies and practices which have been introduced in many companies in recent years.
- **NPR buyers**. These buyers are responsible for buying non-product-related (NPR) goods and services (also referred to as 'indirect procurement'). For an NPR buyer a general, college education will suffice. With regard to the procurement of spare parts, the delivery of these items in general will be covered in the original contract for the investment good. The NPR assortment is generally very large and it is the task of the NPR buyer to manage these assortments effectively, rather than striving to optimize the price performance for each individual item. Therefore, a good understanding of logistics management and techniques (of inventory management and order management specifically), catalogue solutions and e-procurement applications would be basic to this type of buyer.
- Contract managers. Contract managers may take over at the moment when contracts have been negotiated and confirmed by sourcing managers. Their task is to monitor the implementation of the contract arrangements and they need to verify whether delivery is compliant with what has been agreed. Contract managers need to verify and validate supplier activities which are executed in the relationship with business units and departments, i.e. far away from the corporate headquarters where the deals have been concluded. Contract managers are especially popular in the construction and ICT industries. Contract managers should report any unresolved issues to them. Should they be part of the legal department? Or should they report to the CPO? Today, this issue is solved by companies in different ways.
- Legal counsels. Given the complexity of certain contracts, it may come as no surprise that legal expertise is needed to support buyers and sourcing managers in evaluating and negotiating contracts. This is especially true for the government, where buyers are confronted with increasingly complex legislation on public procurement (e.g. EU tender regulation). The contract between the EU and AstraZeneca for 300 million doses of the COVID-19 vaccine, may serve as an example here. It was signed August 2020 and by April 2021 the EU sued the company for not respecting the contract, because only a fraction of the agreed 300 million doses were delivered. AstraZeneca, however, stated that the contract obliged them to make their 'best efforts' to deliver the agreed number and that they suffered from some production issues. The contract did not include any penalty clause. The EU lost the legal battle and switched to other suppliers.

Materials planners

Responsible for materials planning and ordering. Materials planners focus on calling off the materials required against the prearranged framework agreements. Furthermore, they monitor and control suppliers on their quality and delivery performance.

NPR buyers Buyers responsible for buying and non-product-related goods and services.

Table 13.4 summarizes the most important skills and abilities of the functions described.

Table 13.4 Procurement job profiles and their most important responsibilities and competencies

Job profile	Responsibilities	Competencies required
Chief Procurement Officer (CPO) and Executive level (SVP, VP) procurement directors	Developing the procurement function (incl. processes, systems and people), managing implementation of corporate sourcing and SRM strategies, setting goals and targets and reporting on procurement performance	General management Leadership Communication Change management
Corporate buyer	Buying strategic commodities	Commercial Long-term planning Broad business orientation Communication skills
Category sourcing manager	Sourcing strategic commodities	All-round technical education Long-term planning Strategic thinking Business acumen Communication
Project buyer	Buying investment goods and maintenance goods and services	Project management Technical education
NPR buyer (indirect procurement)	Buying general non-product-related goods and services	Generalist Business administration Communication Stakeholder engagement
Operational buyer	Materials planning Order handling Troubleshooting Supplier evaluation and supplier rating	All-round Pragmatic Customer-driven Stress resistant Problem solver
Business analyst / Sourcing analyst	Conducting supply market analysis, cost price analysis, spend analysis	Business orientation Analytical thinking Data analytics Reporting
Contract manager	Supporting buyers during contract negotiations Monitor implementation of contractual arrangements and solve supplier disputes	Legal Commercial orientation Communication Analytical thinking Reporting
Legal counsel	Advise on contract models and contracts Support contract negotiations Solve supplier disputes	Legal Analytical thinking Consulting Reporting

Procurement competencies

'Buyers have no chance against the expert techniques of sales professionals' says Helen Hysell in her book *The Science of Purchasing* (Hysell, 1922).² About 100 years ago, procurement professionals were perceived to be lacking the right knowledge and skills

²This was one of the first books published in the field of procurement.

to deal with their more knowledgeable counterparts on the sales side. According to Hysell, a ‘modern’ buyer can and should be much more than just a bargainer for the last penny. We could not agree more. The job of a buyer has undergone some major changes in recent decades. In the 1980s, the professional buyer role was described in job advertisements as an independent, price-oriented negotiator. Today’s buyers must be all-rounders, strategic thinkers, entrepreneurial, collaborative team players.

What makes an effective procurement professional? First, the extent to which a candidate has all the knowledge and skills necessary to perform their procurement tasks (i.e. job description) properly. In most cases, when applying for a new job, procurement professionals will be assessed on their procurement knowledge and experience (e.g. strategic sourcing, cost analysis, supply market analysis) and more general competencies (e.g. communication, strategic thinking, teamwork). For these procurement job assessments, specific measurement scales (e.g. strategic sourcing) are used in practice (refer to Figure 13.8).

Figure 13.8 Example of competency assessment scale for strategic sourcing

Source: Adapted from SOLVINT Supply Management: Competence assessment tool (2020). Reproduced with permission.

Assessment level	Strategic sourcing scale
Lacking	<ul style="list-style-type: none"> ● Has no knowledge of the strategic sourcing process or demonstrates very poor understanding
Basic	<ul style="list-style-type: none"> ● Has a basic knowledge of the strategic sourcing process ● Knows the various steps in the process, but only employs the process sporadically and/or is not able to employ it independently
Competent	<ul style="list-style-type: none"> ● Is very familiar with the strategic sourcing process and all of its underlying steps and can employ it independently ● Is capable of drafting functional specifications ● Has an eye for the tactical dimension of strategic sourcing ● Views the process from a TCO perspective ● Knows and utilizes all the relevant tools, templates and deliverables of the strategic sourcing process ● Employs the strategic sourcing process regularly and independently
Advanced	<ul style="list-style-type: none"> ● Has a complete and thorough understanding of the strategic sourcing process and all its underlying steps, tools, templates and deliverables ● Has an eye for the strategic dimension of strategic sourcing and is able to conduct portfolio & Pareto analyses ● Is capable of developing and implementing sourcing strategies for very complex products and services (sourcing categories) ● Is capable of drafting comprehensive SLAs ● Is capable of further optimizing the sourcing process
Excellent	<ul style="list-style-type: none"> ● Is considered an expert in strategic sourcing ● Is propagating the importance of strategic sourcing within the whole organization (i.e. selling the concept) ● Can coach and assist colleagues involved in strategic sourcing to further develop their skills ● Looks at sourcing performance from a cost, value and risk-based perspective

Procurement knowledge seems closely related to job performance. This is different for executive level procurement professionals (i.e. CPOs). For them, general management and strategic business skills are more important than procurement expertise. However, knowledge alone is not enough. If a procurement professional does not have the right

skills, they will not be effective. Skills refer to the ability to use professional knowledge effectively in their daily job.

Recent research presents a procurement competencies framework that identifies more than 60 competencies that a diverse group of procurement professionals (including buyers, category sourcing managers, procurement directors, etc.) indicated they need to meet their organizational objectives and be successful in their jobs today and in the future (Bals et al., 2019). Although ‘negotiation’ was mentioned most, it’s clear that today a broad mix of competencies is required to be successful as a procurement professional (refer to Figure 13.9). The skills are grouped in four categories: (1) technical skills: professional skills and basic knowledge necessary for any procurement professional to perform their job (e.g. product knowledge, negotiation, strategic sourcing); (2) interpersonal skills: necessary skills for effective interaction with people in teams and on an individual level (e.g. communication, conflict resolution, influencing and persuasion); (3) general business skills: these skills relate to the overall business and how the different functions interact with each other (e.g. change management, networking, stakeholder management); and (4) strategic business skills: these skills relate to the broader strategic business agenda and how procurement can contribute to this agenda and add value to the company (e.g. strategic thinking, sustainability, managing strategic partnerships and alliances, risk management).

Figure 13.9 Procurement competencies framework

Source: Adapted from Bals, L., Schulze, H., Kelly, S., & Stek, K. (2019). Purchasing and supply management (PSM) competencies: Current and future requirements. Journal of Purchasing and Supply Management, 25(5). <https://doi.org/10.1016/j.pursup.2019.100572>

Technical competencies	Interpersonal competencies	General business competencies	Strategic business competencies
<ul style="list-style-type: none"> ● Basic knowledge of procurement ● Computer literacy ● Contract management ● Cost savings ● eProcurement technology ● Intellectual property ● KPI reporting ● Design languages ● Negotiation ● Process optimization ● Product knowledge ● Project management ● Quality assurance ● Strategic sourcing ● Supplier management ● Tools and systems implementation ● Automation ● Big data analytics ● Innovation sourcing ● Innovative sourcing approaches 	<ul style="list-style-type: none"> ● Analytical thinking ● Conflict resolution ● Creativity ● Decision making ● Effective questioning techniques ● Integrity ● Interpersonal communication ● Knowledge sharing ● Leadership ● Learning agility ● Prioritization ● Remote virtual working ● Results driven ● Structured way of working ● Teamworking ● Curiosity ● Deal with ambiguity ● Humility ● Mobility ● Openness, open-minded ● Passion ● Resilience ● Self-confidence ● Self-reflection ● Self-reliance 	<ul style="list-style-type: none"> ● Change management ● Communication ● Cross-functional knowledge* ● Cultural awareness ● Customer focus ● Networking ● Stakeholder relationship management ● Supplier relationship management <p>*Operations, supply chain, sales, engineering, marketing, quality, R&D, finance, logistics</p>	<ul style="list-style-type: none"> ● Business acumen ● Financial acumen ● Risk management ● Strategic thinking ● Procurement best-practice intelligence scouting ● Critical thinking ● <i>Holistic supply chain thinking</i> ● Sustainability

Important new competencies for the future (noted in *italics* in Figure 13.9) reflect areas of growing interest and concern in procurement, such as competencies related to digitalization (i.e. analytical skills, automation, big data analysis, computer literacy, e-procurement), strategic business alignment (e.g. process optimization, strategic sourcing, strategic thinking) and sustainability (i.e. holistic supply chain thinking, sustainability skills). In addition, a number of interpersonal skills were indicated that characterize next generation procurement professionals (e.g. passion, curiosity, self-reflection).

Recently, Deloitte presented a 10-year reflection (2011–2021) of their annual CPO survey (Deloitte, 2021). The results show that attracting talent has remained a consistent priority issue for CPOs across all types of organizations in the 2010s, resulting in talent gaps and open vacancies. Also, highly developed procurement organizations seem to have fewer difficulties in attracting procurement talent. Procurement leaders of these organizations realize that people are key in procurement and invest heavily in recruiting new talent (e.g. internships, junior talent pools) and training their top talents (e.g. fast-track development programmes, coaching, executive training). Next to training, proper job performance monitoring and a compensation and benefits system are needed to motivate procurement professionals to adopt and use the new knowledge and skills in their daily work (Feisel, Hartmann & Giunipero, 2011).

Summary

Procurement organizations appear to vary greatly across companies and industries. This is due to the different views which top managers may hold towards their procurement functions. Apart from this, company-specific characteristics define procurement's reporting relationships. Among these, procurement's share in the end-product's costs, the financial position of the company and the company's dependency on the supplier market seem to be the most important.

When analyzing the tasks, responsibilities and authority of the procurement function, the strategic, tactical and operational levels were differentiated. When redesigning their procurement organizations, CPOs should make sure that each of the task levels is given sufficient attention. The outcome of such a process will probably be different for multi-unit companies and single-unit companies. In a multi-unit environment, it should be decided to what extent the procurement function should be decentralized. In this respect, three types of organizational structures have been discussed: centralized, decentralized and hybrid structures. The hybrid structures are the most complicated; however, their popularity has grown across large companies. Hybrid structures may have different forms (i.e. federal, co-ordinated and centre-led). The decision of whether to centralize or decentralize depends on a limited number of parameters. Procurement maturity and corporate coherence were discussed as the two most important factors. It is fair to conclude that there is no single best way to organize procurement in a corporate, multi-unit environment.

Procurement structures appear to be highly volatile: a period of centralized procurement is often followed by a change to the other way around. Due to increasing international competition and maturing end-user markets, the present trend is towards hybrid structures. Many companies try to reap the benefits of co-ordinating sourcing of common materials, while delegating operational procurement tasks to local business units.

When designing procurement organization for a single-unit company, a number of parameters need to be considered. IT has allowed integration of procurement activities within the supply chain management function. In this respect, various options are open to managers. They may choose a totally integrated model or decide on a partially integrated model.

Changes in the external business context and internal company context are reflected in future competencies for different procurement positions. For this reason, the profiles of the chief procurement officer, the corporate buyer, the category sourcing manager, the procurement engineer, the project buyer, the materials planner and the NPR buyer were discussed. From this discussion, it became clear that procurement provides significant career challenges to those with an engineering and/or business economics background.

Assignments

- 13.1** When discussing the opportunity to foster corporate synergies in procurement, some top managers stated that ‘procurement in our company is too important to leave it only to buyers’! Would you agree with this?
- 13.2** In this chapter, it was argued that most large companies have opted for a hybrid structure to organize their procurement activities. What is meant by this? Why would companies choose such a hybrid structure?
- 13.3** When applying for a new job in a medium-sized company, a prospective procurement manager was asked to whom they would prefer to report: (1) the financial manager, (2) the production manager or (3) the logistics manager. Each of these managers reports at the same hierarchical level. What would you consider to be the most important advantages and disadvantages of each option? Which option would you prefer?
- 13.4** Some complaints that can be heard from chief procurement officers in companies are that their carefully negotiated corporate agreements are barely used by the decentralized business units. These contracts suffer from a low compliance rate. What could be the reason for this phenomenon?
- 13.5** How would you explain the growing popularity of cross-functional sourcing teams at the corporate level? What would you consider to be the critical success factors of such teams?

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14 Procurement systems

Learning objectives

After studying this chapter you should understand the following:

- Why information systems are fundamental for procurement.
- What e-procurement solutions are and how they can be categorized.
- What spend analytics is and why it is so important.
- What digital solutions are available to support e-sourcing, purchase-to-pay, contract management and supplier relations management.
- What emerging digital technologies will create the future procurement landscape.

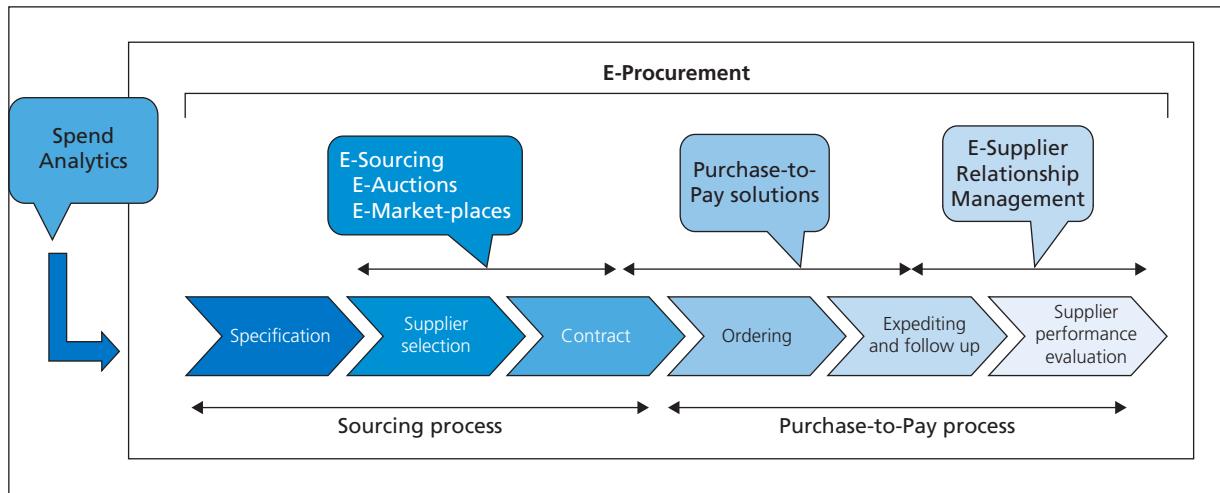
Introduction

The use of information technology (IT) in procurement has a long history. Over the last decades the use of IT in procurement has evolved from automating the clerical and administrative activities of the buyer (1960s), to management reporting and integration with production planning (1970s), to decision support and communication (1980s), to the emergence of internet and e-procurement (1990s), to e-procurement, e-sourcing and e-auctions in the 2000s, cloud computing, e-SRM in the 2010s, and towards emerging digital technologies such as blockchain, artificial intelligence, virtual assistants and chatbots in the 2020s (Glas & Kleemann, 2016). We assume that development of e-procurement solutions will continue to develop.

Back in 1997, Van Stekelenborg investigated how IT could be used effectively in supporting both operational and tactical procurement processes. In 1999, internet technology created a multitude of procurement systems solutions, which were referred to as e-procurement. Harink (2003) developed a method that organizations could apply to decide about when to apply which e-procurement solutions. When e-procurement technology became available, the next challenge was to get it adopted by procurement professionals. Reunis (2007) focused on identifying the most effective influencing tactics a procurement manager could use to enable adoption of e-procurement technology in his organization. In the early years e-procurement mainly focused on automation of the procure-to-pay process (i.e. purchase-to-pay, order-to-pay). Later, a number of digital tools became available for procurement managers, such as spend analytics,

e-sourcing, invoice processing, procurement performance monitors (including savings trackers), e-contract management and e-SRM (refer to Figure 14.1). In this text the term e-procurement is used in its broadest sense, i.e. not limited only to digital solutions for transactional processes.

Figure 14.1 E-procurement and related IT solutions



Case study

How digitalization redefines procurement

Since the start of the 2010s, a shift has taken place as companies have deployed digital tools to make procurement a central driver, not only to cut costs or ethically source supplies but also to simplify supply chain operations and foster supplier-enabled innovation. The advent of digital tools has put procurement at the forefront of business strategy. Today, more than 3.4 million companies across 190 countries use the SAP Ariba Network to process US\$2.1 trillion worth of transactions each year, which is more than Amazon, Alibaba and eBay put together! In 2012, Ariba was purchased for US\$4.3bn by German software group SAP. Back then, Ariba was processing US\$350bn in e-commerce. Its rapid growth since then reflects a boom in how digital procurement tools are being deployed to manage complexity that procurement professionals, who rely mainly on paper and spreadsheets, cannot comprehend. For example, instead of making sourcing decisions just based on price, companies can now consider multiple selection criteria, ranging from speed and capability via supply chain risks to sustainability and ethics.

SAP Ariba's goal is to push procurement to the forefront of strategy and 'Make Procurement Awesome' (i.e. SAP Ariba's company slogan). According to SAP Ariba, the greater the complexity of a supply chain, the more digital tools will help to add value to your business. BASF may serve as an example. The German chemical company uses SAP Ariba to catalogue more than 80,000 suppliers, whose individual transactions then can be traced and evaluated. If BASF needs a product or service, it just puts out an e-auction to let suppliers bid on it. The system also allows new suppliers to bid, which helps BASF to avoid dealing with the same base of known suppliers over and over again. At Swiss chemicals group Clariant, digital tools allow procurement to centrally monitor their entire spend and score suppliers on dozens of key performance indicators (KPIs) that buyers can monitor daily. Further, buyers can use digital filters in SAP Ariba to select only suppliers that are certified for

using only conflict-free materials or that endorse specific sustainability goals, to make sure Clariant only works with suppliers that fully comply with their sustainability standards.

Digital tools also play a key role in reducing fraud, because each transaction made in SAP Ariba leaves a digital footprint. The more manual paperwork there is going into the system, the more opportunities there are for individuals to conspire with suppliers and circumvent controls, because no one can look holistically at the data. Digital procurement solutions allow buyers to track potential fraud and to flag anomalies. In this way, procurement can play a big role in making the businesses act more ethically and responsibly in dealing with suppliers.

Source: Adapted from McGee, P. (2018) Procurement comes out of the shadows, *Financial Times*, 21 November 2018 (edited by the authors from www.ft.com).

In this chapter contemporary IT solutions in procurement are presented and discussed. Next, the value of emerging digital technologies for procurement and how these create procurement's future landscape will be identified and discussed.

Contemporary digital solutions for procurement

E-procurement solutions Relate to all digital and/or web-enabled solutions aimed at supporting the procurement process and all electronic data exchange that is needed for efficient transactions with suppliers.

When procurement systems are isolated and not integrated with the company's ERP and financial systems, purchase order data must be entered manually into the procurement system. This, of course, creates the risk of mistakes (e.g. wrong supplier code or contract number, etc.). It also makes the work of buyers very laborious and time-consuming. Therefore, introducing more advanced procurement systems and digital procurement solutions is a prerequisite for improving both efficiency and professionalism in procurement.

E-procurement solutions have great advantages (refer to Memo 14.1.) A fully integrated order-to-pay solution allows the processing of many more procurement transactions at a much faster and much lower cost.

Memo 14.1

What problems are solved by e-procurement systems?

Today, consumers are accustomed to ordering their products through web-shops, such as those offered by Alibaba, Amazon, Zalando, Bol.com and Coolblue. These web-shops offer consumers superior shopping convenience and allow them to trace and track their orders up to the moment of delivery. Most of these web-shop solutions are extremely user friendly and customer focused. **E-procurement solutions** in B2B want to offer the same functionality

to companies. However, since they need to be adapted to the specific company (systems) environment, their functionality is often far less than is experienced by consumers.

For example, e-procurement systems enable authorized users within organizations to order directly from a supplier's electronic catalogue without the interference of a procurement department.

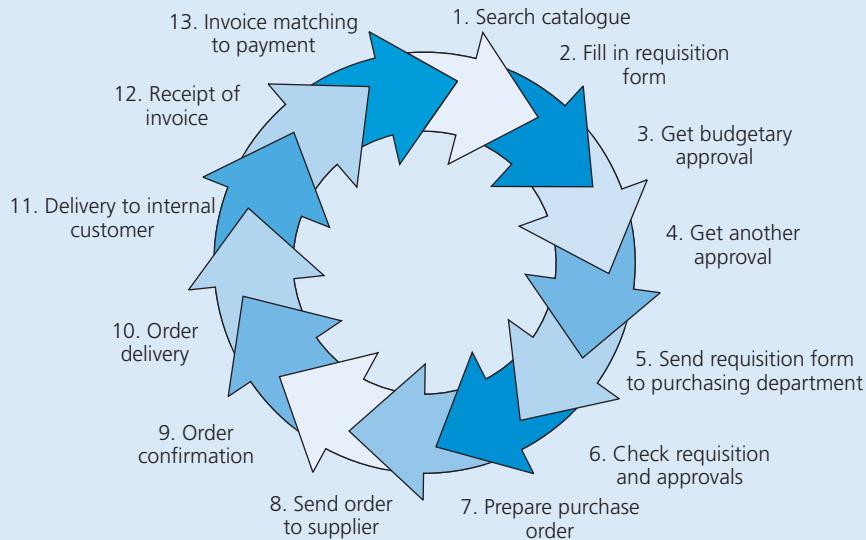


Orders are acknowledged automatically by the supplier. The user can verify the order status online, when desired ('When will the order be delivered?' 'What terms and conditions apply?'). There is no need to contact the procurement department for this kind of question. Many suppliers nowadays offer detailed

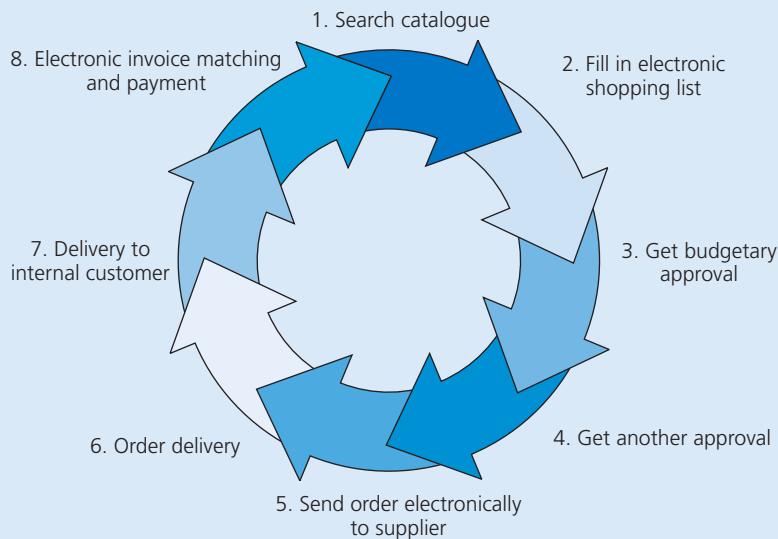
tracing and tracking facilities which enable their customers to monitor order follow-up and delivery real-time. Besides this, e-procurement systems enable electronic invoicing, invoice matching and payment. As a result the traditional order-to-pay cycle is reduced and simplified considerably (refer to Figure 14.2).

Figure 14.2 E-procurement systems result in a significant reduction in the traditional order-to-pay cycle

a. Traditional order-to-pay cycle



b. Digital order-to-pay cycle



A second advantage is that the percentage of maverick buying¹ is drastically reduced, which also results in considerable savings. Third, the buyers are liberated from a massive administrative burden, which enables them to spend much more time on commercial duties.

In general, e-procurement systems represent an important productivity tool for both procurement managers and other departments, since these result in a significant reduction in administrative workload. They allow internal departments and managers to work with electronic catalogues for all kinds of parts and services, from which they can order directly (without interference from the procurement department) from the contracted suppliers. Only for new products and suppliers do they need to seek support from procurement. Finally, e-procurement solutions allow the electronic matching of orders and incoming invoices, which may then be paid without unnecessary delays. It may also prevent fake invoices or invoices containing errors being paid by mistake (refer to Memo 14.2.)

Implementation of e-procurement systems is a far from simple matter. It requires a high level of procurement professionalism, clearly spelled out procurement processes and procedures, together with a seamless integration with the general ledger system and other administrative systems within the company. Next, these systems need to match with the administrative systems of suppliers, which in many cases can give rise to some quite big challenges.

Memo 14.2

How inefficient administrative procurement procedures can pay off handsomely

Headquartered in Atlanta, Georgia, PRGX² Global Inc. (www.prgx.com) is a global business analytics and information services firm as well as the leading provider of recovery audit services. With approximately 1500 employees, the company operates and serves clients in more than 30 countries and provides its services to over 75 per cent of the top 30 global retailers. In 2019 PRGX reported sales revenues of over US\$170 million and a handsome profit. What does PRGX actually do?

PRGX conducts so-called 'recovery audits' and works on the basis of no cure-no pay. It targets its activities on large retailers and manufacturing firms. Based on the annual report of its prospective clients, the company presents a proposal to investigate the invoices that have been paid for goods and services (including transport) by that client during a certain

period. With their proprietary technology they mine large amounts of data drawn from the clients' source-to-pay system and processes. Their investigation consists of checking whether the quantities invoiced by supplier and the price paid match the company's purchase orders and whether this data complies with the contract that has been negotiated with that supplier. If any variances are found (e.g. unfair prices being charged or delivered quantities being lower than those invoiced) these are reported. Savings will be shared on a 50:50 basis with the client. The growth of PRGX is illustrative of how a spend data-analytics firm, operating in a niche market, may benefit from apparent deficiencies in the purchase-to-pay systems and financial flows between buyers and suppliers.



¹This refers to the share of the procurement volume that is bought without a contract (often a considerable share of the total procurement expenditure).

²Formerly known as Profit Recovery Group.

According to Umbenhauer (2021) digital solutions and technologies for procurement can be divided into the following categories:

- 1 Source-to-contract. These are digital solutions to simplify, automate and enhance spend analysis, supply market research, supplier selection and negotiations between buyers and suppliers (e.g. spend analytics, e-sourcing / e-tendering, e-auctions and B2B marketplaces).
- 2 Purchase-to-pay (P2P). These are digital tools to simplify ordering and payment processes and workflows, sometimes referred to as procure-to-pay, order-to-pay, e-catalogs, e-ordering and/or e-invoice processing.
- 3 e-SRM: These are digital tools to enhance the assessment of suppliers and evaluate supplier performance. Aimed at supplier management (automated supplier scorecard with KPI measuring supplier performance) and contract management (contract automation with tracking, alerts and analytics).

Each of these categories is now discussed in more detail.

Source-to-contract solutions

Digital solutions in this area of procurement are aimed at simplifying, automating and enhancing spend analysis, supply market research, supplier selection and commercial interactions between buyers and suppliers. Different solutions are available ranging from spend analytics, e-sourcing / e-tendering and e-auctions to B2B marketplaces.

SPEND ANALYTICS

Having a clear and detailed overview of the total procurement spend is the starting point for any procurement strategy. Conducting a spend analysis is the process of collecting (i.e. downloading spend data from ERP systems and financial systems), cleansing (i.e. deleting outdated and/or wrong data), classifying (i.e. being able to allocate spend data to different sourcing categories and suppliers) and analyzing consolidated spend data. It is one of the key tools that procurement managers use to proactively identify savings opportunities, supply risks and contract compliance issues. In the past, spend data was created manually and it took a lot of resources to collect, analyze and categorize all paper invoices. Today, digital solutions are available that automate these activities to a large extent. Any spend analysis starts with the identification of relevant spend data sources, i.e. ERP systems, general ledger information (i.e. financial data from accounts payable), purchase orders, and sometimes also data shared by suppliers.

A spend analysis aims to answer a number of questions. What are we buying (e.g. what spend category)? Who are we buying it from (i.e. what supplier)? Who is buying it (e.g. BU, internal user, budget holder)? How often do we buy? When did we buy it? How much did we pay? Where were the items delivered (geographical location)? How does the current data compare to previous years? Spend analysis is usually based on a database structure, which can be depicted graphically as the Spend Cube (refer to Chapter 1, Figure 1.4).

Once a sourcing manager has this data available for a specific sourcing category, they can use it to develop their sourcing strategy (e.g. where to reduce suppliers, where to consolidate volumes and improve buying power, etc.). With today's spend analytics tools it is easy to slice and dice the spend data to analyze it from many different angles.

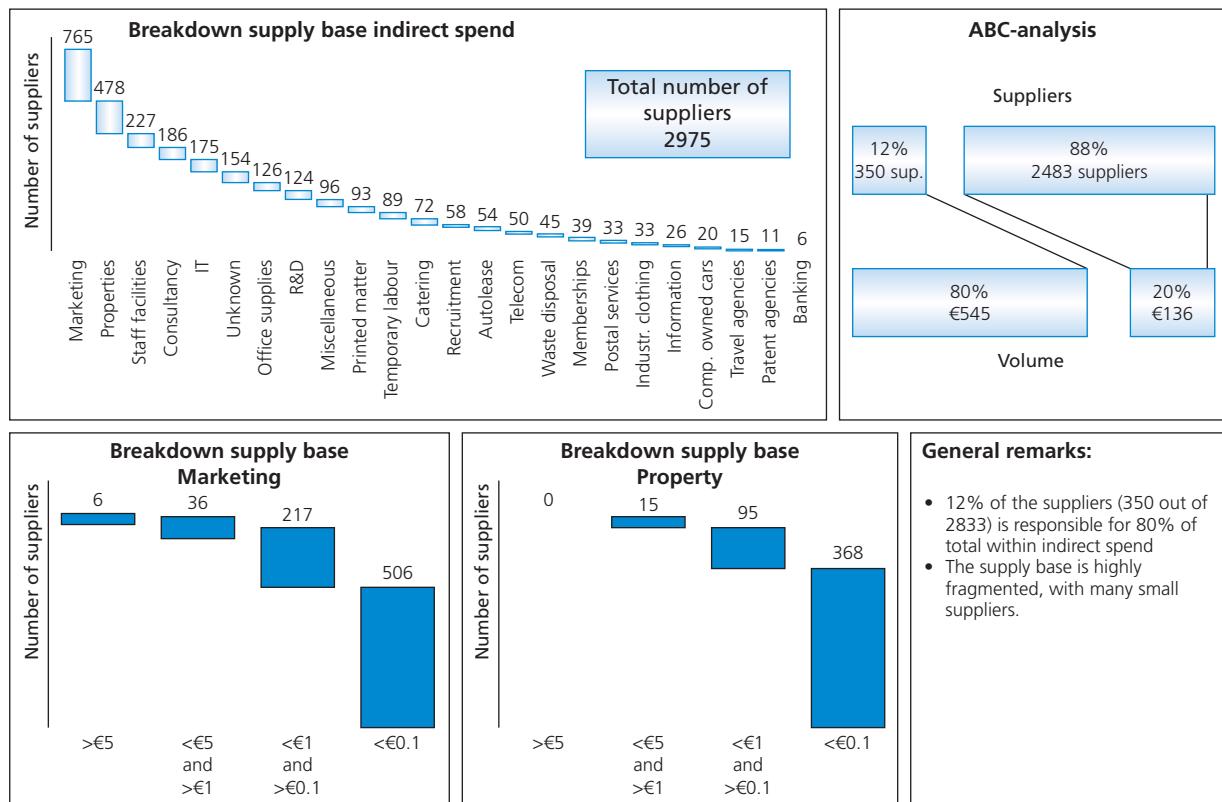
This will support procurement managers to gain a detailed overview of relevant procurement indicators such as:

- spend by commodity or category
- number of suppliers by commodity/ category
- number of transactions by commodity/ category
- key figures regarding compliance to procurement policies and contracts
- average purchase order value
- spending distribution of the key customers
- material prices or material price changes
- total spend by supplier
- spend by procurement function and the number of buyers involved per commodity.

Spend analysis offers procurement managers a number of key benefits, including full visibility on procurement spend, identification of savings opportunities, aligning and streamlining procurement processes across business units, managing maverick spending and contract compliance, and benchmarking spend behaviour internally and/or with peers. Spend analysis is fundamental for developing effective sourcing strategies. Refer to Figure 14.3 for an example.

Figure 14.3 Spend analysis indirect spend: example

Source: Original company data was adapted for use by the authors for educational purposes.



E-SOURCING

E-sourcing solutions are digital tools that help to streamline, simplify and improve both day-to-day and strategic sourcing activities. These tools support sourcing managers during the sourcing process from start to finish with template-based project management. More specifically, e-sourcing solutions enable sourcing managers to create a request for information (RFI), a request for quotation (RFQ) and a request for proposal (RFP). Further, e-sourcing enables e-auctions, which give the sourcing manager the opportunity to create maximum competition among a number of preselected suppliers and to arrive at better prices and contract terms. Finally, e-sourcing supports monitoring the progress of running sourcing projects and creating detailed reports.

In short, e-sourcing solutions automate the entire tendering process from tender creation, to sending out the RFP/RFQ, to analysis of supplier responses against predefined buyer selection criteria and automated selection of the winning tender. When implemented and used effectively, e-sourcing solutions can drastically reduce the overall sourcing cycle time. Some e-sourcing solutions combine e-sourcing and contract management functionality (i.e. source-to-contract solution). It allows users to review information, from the initial tenders, all the way through to e-auctions and contracts. Each stage is tracked and stored so users can track individual changes made by suppliers in real-time.

E-AUCTIONS

An e-auction allows suppliers to bid against each other for the contract in a digital real-time bidding platform. E-auctions have become very popular. They are not new to most businesses. For example, for most agricultural products, such as wheat and soybeans, international trade exchanges exist where buyers and sellers meet daily for their transactions. Other examples are flowers and vegetables, which are traditionally traded through public auctions. An important characteristic of auctions is that the price is made by bringing supply and demand together in a transparent way. Digital technology today allows these auctions to be conducted online. **Electronic auctions (e-auctions)** can have different forms. A distinction should be drawn between:

- Open RFI/RFP. In this case, potential suppliers are requested by the buyer to qualify before the actual auction takes place. The buyer will assure that the supplier meets certain basic qualifications. Suppliers are requested to provide important background information, such as their financial status and customer references, their product range, and information covering their expertise and experience. The buyer obtains this information through a so-called request for information (RFI) that is sent to the supplier over the web. Next, the buyer can send a request for proposal (RFP) to the supplier to gain an initial idea about its competitiveness, i.e. price range and rates. After an evaluation of their initial proposals, it is then decided which suppliers will be invited for the actual e-auction.
- **Reverse auction.** In this type of auction (refer to Figure 14.4) the buyer sets a starting price that the supplier needs to meet in order to gain access to the auction. Visible in the auction is also the target price that the buyer wants to reach as a minimum. If this target price is not reached, the auction will not be awarded. During the auction suppliers can follow the bids that are submitted. How this information is presented towards the supplier can be decided by the buyer, who can decide to show the actual prices as they are offered by the suppliers. However, they can also decide

Electronic auctions (e-auctions) Electronic auctions (e-auctions) are tools used by the buyer to invite suppliers to bid simultaneously based on a predetermined procurement specification using web technology.

Reverse auction An e-auction which is used by buyers to enforce competitive bidding among a limited number of prequalified suppliers based on a starting price that is lowered during the auction.

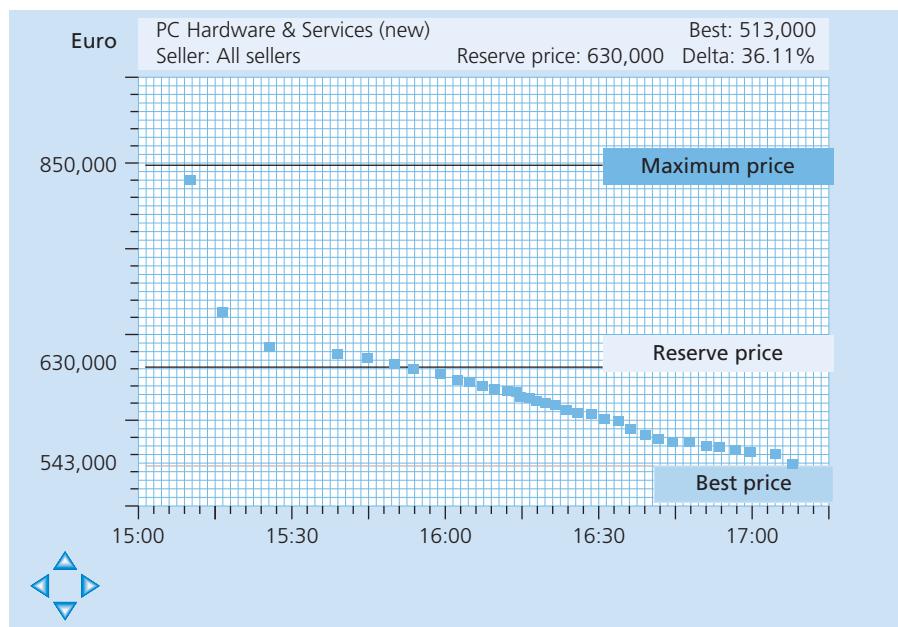
to show them only their ranking. Next, the buyer may decide to show only the price difference between the actual supplier price and the best price. The supplier may perceive at any time the number of ‘clicks’ required to meet the best price proposal. Each buyer can also determine that supplier’s need to come up with a proposal every five or ten minutes to ensure sufficient activity during the auction and to prevent ‘bird watching’. Suppliers that do not provide bids every ten minutes are eliminated from the auction.

Forward auction An e-auction which is used by suppliers to enforce bidding among a number of prospective buyers based on a starting price that is increased during the auction.

- **Forward auction.** This auction is used to sell products. Historically, this was done for artwork and paintings (e.g. Sotheby’s, Christies). Different buyers need to offer their bids to the seller. Also in this case the auction manager can decide about a target sales price at the beginning of the auction. The seller can decide about the same aspects as the buyer in the case of a reverse auction, on how to manage their auction.

For obvious reasons, the reverse auction is the most popular among buyers. In some cases, however, the forward auction is used, for example in the case of selling surplus materials, inventories and machines that otherwise would be scrapped.

Figure 14.4 Example of a reversed auction

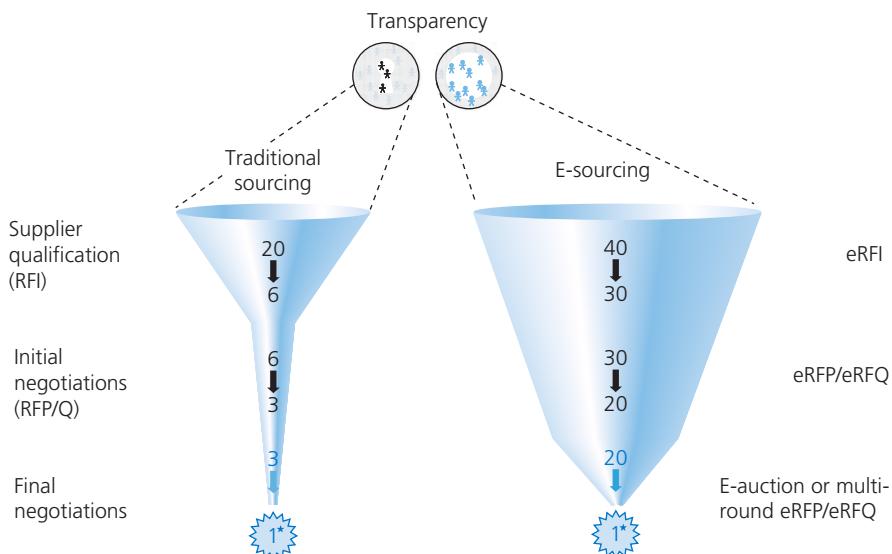


Auctions cannot be applied in all situations. Markets as well as products should meet a number of conditions. It is essential that a high volume be committed. This is necessary to ensure that the savings that result from the auction will outweigh the investment in terms of time and money. There should be sufficient competition among suppliers. There should also be a level playing field to allow suppliers to compete under equal conditions. The buyer should be sufficiently interesting for the supplier to prepare for the auction. Apart from these conditions, the specifications that are communicated to the suppliers should be very clear and not subject to change. The buyer should support the supplier in getting sufficiently acquainted with the auction software and methodology. These are just a few concerns that an auction manager needs to consider when conducting an e-auction.

An important advantage of e-auctions are the considerable savings that can be generated. In practice, savings can vary between 5 and 40 per cent. The savings are possible through the meticulous preparation that is required from the buyer. All departments and specialists involved with the purchase need to be aligned. Another reason for these savings is the fact that an e-auction essentially causes suppliers to compete against each other. The buyer is able to create more competition among a larger sample of suppliers than they are able to do in face-to-face negotiations (refer to Figure 14.5). Preparing for an e-auction, however, will take time and this is considered by some managers to be an important disadvantage. Of course, most suppliers do not like this type of electronic buying since the price pressure that is generated by e-auctions generally reduces their margins. They do not like being put on one level playing field, as the following example illustrates.

Figure 14.5 E-sourcing facilitates competition between more suppliers

Source: Original company data was adapted for use by the authors for educational purposes.



A global construction firm had decided to conduct an e-auction as part of their sourcing strategy for the purchase of overnight stays at various hotels in the vicinity of their main (head) offices. After preparation, a number of preselected hotels were invited to bid against each other in the e-auction. The sourcing manager had gained experience with this technology at their previous employer and was hopeful of at least 30 per cent savings on hotel costs. However, just before the e-auction was to go live, it appeared that the hotel that was highly valued by the company for both service quality (very high customer satisfaction) and location (very close to the (head) office) had decided not to participate in the e-auction. They were eager to do business with the company but not to bid online against other hotels first. The sourcing manager continued with the e-auction but had to make separate arrangements with the non-participating hotel.

The benefits of an e-auction should clearly outweigh the investment before using it. Therefore, e-auctions are mainly used for products and services that are bought in large volumes (such as leverage items and routine items).

B2B MARKETPLACES

Today's generation of procurement leaders, who have grown up buying online for many of their personal needs (e.g. Amazon, Alibaba, Zalando, Bol.com, Coolblue), no longer need to be convinced that buying via online marketplaces also makes sense for their business needs.

B2B marketplaces (aka business-to-business platforms or digital ecosystems) have been around since the 2000s. B2B marketplaces create digital platforms (or ecosystems) where multiple suppliers can offer their products or services to multiple business customers.

B2B marketplaces simplify the process of searching and finding suitable suppliers, allowing sourcing managers to go beyond their traditional supplier markets to find new suppliers. B2B marketplaces can be found in different supply markets such as commodities, transport and logistics, but also in services:

- Commodity marketplaces often focus on products like office supplies, chemicals, MRO and packaging. Amazon Business and Alibaba are probably the best-known names. Aeroxchange offers the airline industry a digital platform for trading MRO parts and components. Other examples include ThomasNet, GlobalSourcesDirect, Chemsquare, Chembid, Metalshub, Molport and Excess Materials Exchange.
- Transport and logistics marketplaces that typically offer freight services such as Cargo. one, Cargonexx, Quicargo, Spinergie and Shipwise. Specialty logistics players such as Stowga (warehousing) and Gophr (last mile delivery) arguably also fall into this category.
- Services marketplaces offer business services such as travel, marketing, telecoms, IT and technology, temporary labour, facilities management, rent and real estate, insurance and professional services (such as legal and consulting). Two well-known examples are Uber and Airbnb. But also SAP Fieldglass and Concur, the expense and travel-management sites. Other examples include Mayple, Lengoo, Rentuu, Globality, Fiverr and Upwork.

B2B marketplaces are designed and built for the specific needs of B2B users and support them with different features and services such as smooth transactions, bulk ordering capabilities, automated request for quotation and negotiation workflows, purchase order acceptance, personalized pricing and quantity discounts, B2B friendly payment types and terms, and all kinds of smart data analytics. Most B2B marketplaces offer the ability to plug directly into the buying company's e-procurement systems (e.g. P2P), which enables an efficient digital ordering and payment process. This integration ensures that purchase orders are issued at the right price and in the correct quantities. It can also simplify negotiation and contract management – and streamline accounting and control. All this makes it easier for buyers to find the right supplier, gain price savings, secure compliance and improve internal customer experience by making transactions simpler and more transparent.

Purchase-to-pay (P2P) solutions Systems used to automate parts of the procurement process, ranging from requisitioning, to ordering, supplier delivery and payment. May be integrated with the company's ERP system.

Purchase-to-pay (P2P) solutions

E-procurement solutions are defined as digital and web-enabled solutions aimed at supporting the procurement process and all electronic data exchange that is needed for efficient transaction processing. E-procurement solutions are often referred to as **purchase-to-pay (P2P) solutions**.³

³Also referred to as 'procure-to-pay', and to a lesser extent, 'order-to-pay'.

E-procurement systems offer buyers greater opportunities for more efficient order handling, improved logistics, a full tracing and tracking of deliveries, and improved and better controlled payments. The P2P tools that are available today allow companies to manage impressive amounts of transactions without any human interference. Cisco, the worldwide leader in network technology, may serve as an example. This company provides an integrated, end-to-end solution (i.e. Cisco Smart Buy Program) to its worldwide suppliers to communicate, connect and process transactions. Partners should register at cisco.com in order to get a direct ordering relationship with Cisco and access to a full list of commerce tools. Cisco's ordering solution is based upon SAP Ariba's e-procurement solution for PO based transactions. This facilitates seamless transactions between the buying organization's ordering systems and supplier product catalogues. This order processing tool allows for a more efficient order handling and a reduction in the number of contact moments between buyer and supplier.

For a long time, printed catalogues provided specifications, prices and illustrations of the items that suppliers could provide. The disadvantages of hard copy catalogues were, however, that they were often obsolete even before they had been published and they were too slow to provide up-to-date information in a dynamic marketplace. This is why e-catalogue solutions have become popular. An e-catalogue is an online solution that enables a supplier to broadcast product and price changes and introduce new items, so that the catalogue is always presenting the most recent information on products and services offered by the supplier.

When the e-catalogue solution is connected to an underlying contract with pre-negotiated prices, specifications and terms, it can even support the e-ordering and e-payment (P2P) solutions of the buyer. E-catalogues are mostly used for frequently replenished (high volume) indirect goods and services (e.g. promotional items, office supplies, catering services, temporary labour and courier services). Depending on the spend category and sourcing strategy, e-catalogues are either managed and hosted by the supplier, the buyer or a combination of the two. By using e-catalogues, more procurement transactions can be bought under contract, as a result of which the percentage of **maverick buying** can be reduced considerably. This is another reason why this type of solution may result in a considerable procurement saving.

Introducing this type of e-procurement solution, however, requires considerable sophistication and expertise. Generally, with regard to electronic transaction processing, many companies still have a long way to go.

Maverick buying The percentage of purchases made outside existing corporate procurement agreements.

e-SRM solutions

Recently, an increase in the use of so-called e-SRM solutions has been observed. These digital platforms centralize all supplier data and monitor all communication and interaction between buyers and suppliers, so that everybody has the same information and can speak with 'one voice' to the suppliers. It also supports quick and efficient comparison and evaluation of supplier performance indicators through surveys and scorecards. Finally, digital tools and supplier dashboards support collaboration projects with key suppliers.

Digital technology can also be used to manage contracts. E-contract management tools enable procurement managers to easily manage their entire contract database from one place. They will receive automatic alerts and notifications for vital contract management, such as contract expiration and renewal.

Having supplier contracts readily available makes it easier to identify and raise service delivery issues, including non-competitive pricing points and slow service times. This will, in turn, support securing contract compliance. By further linking actual spend data to contract data, procurement managers will be able to get detailed insights into contract coverage and utilization across business units and categories, which is instrumental in reducing maverick buying. Some tools allow users to allocate permission levels. That way, only authorized users, buyers and other business stakeholders can easily access vital contract information, or even make changes to contracts. Other useful features include reporting and search functionality, which can save time searching for specific information and enables timely corrective actions to be taken when needed.

Digital solutions for SRM

Supplier management e-tools allow procurement managers to view supplier information electronically and suppliers to self-serve via a supplier portal where they can update their details and add documents (e.g. signed code of conduct). Suppliers are automatically alerted with prompts to correct missing information and will have to respond before trading is possible. Non-compliant suppliers will be put on hold to restrict unwanted transactions.

SRM e-tools create a single platform for buyers to communicate with their suppliers, while having easy access to all relevant supplier information. The tools allow procurement managers to manage and view meetings, supplier performance, supplier satisfaction surveys and invoices, so they can be easily queried. Suppliers who perform best and add value to the business will be displayed clearly, so that it's easy to tell which relationships require the most attention.

Memo 14.3 looks at an example of how an e-SRM tool can be used.

Memo 14.3

Vizibl: example of an e-SRM tool

A well-known e-SRM solution is that of Vizibl. This digital supplier collaboration and innovation platform enables buying organizations and their suppliers to manage every aspect of their relationship more effectively.

By providing one collaborative digital workspace, an effective governance structure, and real-time access to a single source of reliable data, Vizibl facilitates effective collaboration both within the business and across its supply base. Procurement organizations can move beyond purely transactional work to make and prove progress towards strategic business goals.

The systematic approach which underpins the Vizibl platform promotes transparency, efficiency, and accountability, thereby preventing the value leakage which commonly results from lack of access to reliable data, poor people and process governance, or ad-hoc approaches to collaboration and innovation. Through its Value Trackers functionality, Vizibl provides a consolidated view of the true value of each supplier relationship along

multiple dimensions including cost and process efficiency, revenue growth, supply chain resilience improvements, and sustainability performance.

One organization benefitting from the Vizibl solution is Vodafone, who are using the platform for multiple use cases, including in the development of new products and services. The global nature of Vodafone's organization, split across geographies and operating companies, made it difficult for Vodafone to get visibility over single source of truth data, implement a standardized supplier innovation methodology, and prove the benefits of this innovation to the business. This also led to inefficiencies, idea friction losses, and widespread proof of concept duplication, eroding the competitive advantage gained from supplier innovation.

Vizibl provides Vodafone and its strategic suppliers with one shared collaborative digital workspace



to manage performance, relationship quality, and innovation. The platform streamlines how they engage and collaborate with suppliers, providing real-time single source of truth data, clear accountability and ownership of tasks, centralized communication, rigorous process governance, and full visibility over their portfolio of innovation projects.

These projects are conceived of, co-managed, and reported on by Vodafone and its suppliers from the same single platform. With this e-SRM platform, Vodafone

achieved a faster and more efficient proof of concept process that not only increased idea generation, but also increased the conversion of ideas into fully-realized innovation projects, delivering supplier-led innovation back to the business in a much shorter time frame. Vodafone can now more effectively measure, forecast, and prove value generation from supplier innovation, enabling the Vodafone Procurement Company to refine and scale its supplier-led innovation strategy.

Source: www.vizibl.co

Memo 14.4 shows how some procurement managers are using social media (e.g. Twitter, Instagram, Facebook) and/or closed social networks (e.g. Yammer, Salesforce) to connect with their suppliers.

Memo 14.4

Royal Auping: using a social network to foster supplier innovation

Royal Auping is the largest independent Dutch bed manufacturer. With branches in various European countries and a worldwide sales network, Royal Auping is close to realizing its ambition to become the best and most sustainable bed manufacturer in the world. Royal Auping has made a commitment to become fully circular and puts a lot of effort into building the most competitive and sustainable supply chain in the industry. The Auping Preferred Supplier (APS) programme aims to build and maintain long-term relationships with those supply partners that are able to contribute to Royal Auping's most important brand promise: 'Auping Nights, Better Days'. Auping's Procurement Director encourages buyers to stimulate knowledge and information exchange between preferred suppliers and various departments of Auping. A private social network is used to exchange ideas, discuss designs or share updates with specific discussion groups. All preferred suppliers are members of one or more discussion groups that are clustered around a specific technology, supply

market or strategic theme (e.g. circularity, sustainability). Several teams with Responsible Experts (RE) from Auping are present on the supplier portal. The REs represent, among other things, product development, production, planning and procurement and each RE has a personal profile page. The supplier portal is very successful and is considered one of the main driving forces behind Auping's innovation and value creation programme. 'Suppliers share their ideas for making the supply chain more sustainable and making mattresses more circular on the digital platform and openly discuss them with Auping's Responsible Experts. This gives our organization a good insight into the value that our preferred suppliers create for every euro that we pay them', says the Procurement Director. In 2019, Auping was recognized for their 100 per cent circular mattresses by the Dutch government and awarded with the Circular Award for Business 2019.

(Source: author interview and public sources on internet).



How new IT solutions change the procurement landscape: emerging digital procurement technology

While there are digital technologies that are the mainstay of any procurement function, some disruptive digital technologies are emerging. Today, these emerging digital technologies are regarded as prospects for enhancing procurement performance

(Bienhaus and Haddud, 2018). Examples are big-data analytics, Internet-of-Things (IoT), cloud computing, blockchain, artificial intelligence (AI), chatbots, robotic processes automation (RPA), real-time spend analytics and virtual supplier rooms (Kosmol et al., 2019; Srai & Lorentz, 2019).

Well-known consultants (e.g. Accenture, Deloitte, KPMG, PwC and IBM) speculate on the possible transformative digitalization in procurement and supply management (PSM) and even dare to suggest that advanced forms of digitalization will be catalysts for ‘revolution’, ‘a new era’, ‘a tipping point’, ‘big transformation’ or even ‘disruption’ in terms of the role and impact of procurement. However, an early European study on the digitalization of procurement (‘Procurement 4.0’) by Fraunhofer IML and BME (Henke, 2016) showed that more than two-thirds of the participating companies had not yet implemented any advanced digital technologies and still mainly use transactional e-procurement software. However, these new technologies are believed to improve user friendliness (e.g. guided buying) and convenience for non-procurement employees (e.g. internal users) and other stakeholders (e.g. suppliers).

In their 2019 CPO Survey, SAP⁴ states that more than 80 per cent of CPOs believe digital transformation would increasingly affect procurement in the coming years. However, most CPOs are taking a wait and see approach to adopting emerging digital technologies. Hence SAP’s overall conclusion was: ‘While the adoption of mature technologies (i.e. Cloud solutions, (supplier) collaboration tools, EDI, e-Auctions, Sourcing solutions) is moderate, the adoption of emerging technologies (i.e. AI, Chatbots, Machine learning, Blockchain, Smart contracts, 3D printing, Virtual/Augmented reality, Prescriptive/predictive analytics) is dismal’.

Memo 14.5 takes a look at how Vodafone is supercharging its procurement processes using AI.

Memo 14.5

How Artificial Intelligence (AI) helps Vodafone to boost procurement performance

The procurement world is increasingly going digital and Vodafone has decided to jump on board. Today, the telecom company with 23 operating companies across the world is using the latest digital technology, including data visualization tools and artificial intelligence (AI), to make their global procurement process faster and less expensive.

The numbers are impressive. Annually, the global procurement department issues about 800,000 purchase orders and receives around 5 million invoices. Not surprisingly, tracking and analyzing the effectiveness of all these procurement transactions is

a big challenge. Back in 2015, a team of roughly 15 people spent on average four weeks gathering and analyzing data about the prior month’s purchase orders issued, purchase value, purchasing lead-times, supplier delivery performance, and so on. Vodafone’s CPO admitted it was easy to get very frustrated, because by the time the team had done the analysis, the information was already four weeks old and it was time to start collecting it all over again. Also, it was very difficult to collect all necessary procurement data, and the high rate of errors introduced by the



⁴The 2019 CPO Survey was conducted by University of Mannheim in April 2019. Results are based upon 466 respondents globally.

extremely manual collection process meant that the team had very little time left to analyze the data and make recommendations for improvement.

To fix this problem, the CPO decided to build a Procurement Analytics Control Center to measure efficiency and compliance metrics across its global procurement function. It took about nine months to build the control centre, which includes a platform that analyzes 20 terabytes of data (i.e. two years of transactions) and a data visualization tool that allows the roughly 750 users across the company to spot trends and track performance in real-time in a visually attractive way on a procurement dashboard that is made up of speedometers. The system also relies on robotic process automation (RPA) to simplify a variety of tasks as well as AI and machine learning to identify patterns and boost predictive modelling. It shows that one tool by itself is not sufficient; a combination of different digital tools is required to provide the level of procurement insight needed. Vodafone is one of the early adopters of the latest available digital technologies to tackle increasingly complex procurement and supply chain problems.

The 15 procurement staff members who were previously assigned to collect and analyze the information have been reassigned to higher

value-added tasks such as category sourcing and negotiations.

Today, with a team of only six data scientists managing the platform, Vodafone procurement can track in nearly real-time a purchase order that's moving through the system, from when a requisition is raised by an employee to when the purchase order is approved, issued, delivered and to when the invoice payment is made. Before this digital procurement system was implemented, about 73 per cent of Vodafone's purchase orders were perfect, requiring no adjustments or rework to move through the system. Today, the company has a perfect purchase order rate of 96 per cent, meaning that only 4 per cent of the 800,000 purchase orders still require (some) rework. Procurement administration costs per purchase order reduced from €2.70 (in 2017) to €2.36, representing a cost saving of about €272,000. Vodafone aims to get this to below €1 per purchase order before 2022. Apart from the cost reduction, the new procurement system has helped to improve the efficiency of the procurement process, allowing a reduction of procurement lead-times of 20 per cent.

Source: Adapted from Shumsky, T. (2019) Vodafone supercharges its procurement with automation, AI. *The Wall Street Journal*, 28 June.

A common misunderstanding is that 'digitalization' is often understood as 'automatization'. These terms are not identical. According to Sriai and Lorentz (2019, p. 15), digital procurement involves 'the use of (advanced) "digital technologies" for procurement purposes'. Recently, CIPS⁵ defined digitalization in more broader terms as⁶: 'the practice of redefining models, functions, operations, processes and activities by leveraging technological advancements to build an efficient digital business environment – one where gains (operational and financial) are maximised, and costs and risks are minimised'. In other words, digitalization is far more than just mechanizing traditional ways of doing things and streamlining operational processes to make procurement more efficient. Digitalization enables procurement to play a more strategic role. When implemented strategically and intelligently, emerging digital technologies enable procurement to do things that were previously impossible. Refer to, for example, Memo 14.6.

⁵CIPS: Chartered Institute of Purchasing and Supply Management (UK).

⁶CIPS Report *Digitalisation in procurement and supply*, 2020.

Memo 14.6

Volkswagen reduces supply chain sustainability risk with AI

To ensure sustainable and fair supply chains, Volkswagen, Porsche and Audi together are using AI to identify sustainability risks in their global supply chains at an early stage. Their new monitoring system is based on an intelligent algorithm that is capable of identifying and analyzing supplier-related news from publicly available media and social networks in over 50 languages in 150 countries. The tool monitors a wide range of indicators related to social and environmental issues. In social issues it looks for violations of labour law, unrest in the workforce, child labour or discrimination in the workplace. In terms of environmental issues the algorithm draws on public data regarding air and water pollution, water consumption or waste problems, among other issues.

The AI also analyzes reports indicative of suspected cyberattacks, data fraud or data theft. If the AI technology flags any indication of a potential sustainability violation in the supply chain, the automotive manufacturers are immediately informed, allowing their procurement managers to investigate the facts and systematically follow up on them, thereby

contributing to improved social and environmental conditions at suppliers' production sites.

The pilot project began in October 2020. Since then over 5000 keywords have been analyzed to monitor more than 4000 globally distributed suppliers. 'The key advantage of AI is the speed at which it can recognize relevant news online and report on this in a bundled form. This enables us to find out about sustainability risks at a very early stage, so we can respond more quickly. AI is an ideal example of how digitalization enables far greater transparency in the supply chain', added Marco Philippi, Head of Procurement Strategy at Audi.

Machine learning and automated language processing makes possible what would be impossible to do manually – perform continuous risk assessments across the entire supply chain that procurement can then use to proactively approach suppliers.

Source: Wilson, G. (2021) March 4, retrieved from www.supplychaindigital.com and corporate websites of Volkswagen and Audi.



Drivers and barriers for adapting new digital procurement technology

A recent study from CIPS (2020) investigated the benefits, drivers and barriers of digitalization in procurement. What do procurement managers expect from investments in digital procurement solutions? First, they expect better performance through better contract compliance and reduced maverick buying. Improved performance stems also from much better monitoring and control of how suppliers actually perform. Next, they expect better control of supply chain relationships through early identification of supply risks, which enables them to prevent disruption of operational processes. Third, they expect that with the support of digital technology they can benefit much more from supplier innovation. And, finally, they expect higher employee productivity and motivation as much routine work will disappear. Improved data quality will reduce the risks of failures and mistakes, which is why digital procurement technologies will, in the end, have a positive impact on operational costs.

However, all these benefits have their downsides, as the investments in digital procurement technologies are massive, both in terms of money and management time and effort. In general, the transition process necessary for adopting these technologies is long and troublesome as it requires procurement job profiles to be changed dramatically. In

addition, significant training programmes and consultant support are required to prepare the organization to work with these new solutions. The troublesome implementation processes may explain why, notwithstanding its potential, most companies are lagging behind in making these digital solutions work for their procurement organization and company.

Summary

Procurement is all about information processing, communication and data management. E-procurement solutions offer the procurement professional of today many opportunities to manage the data that goes with hundreds of thousands of products and services that companies buy, the many thousands of suppliers they deal with and the millions of transactions that they process. It also enables them to better communicate with and support the thousands of colleagues and employees in the organization. Finally, it helps them to report about critical procurement activities to senior management to create much better visibility at the boardroom. E-procurement includes the many different IT solutions that have become available, especially since the 2010s, in the procurement domain.

Traditionally, such solutions were limited to supporting procurement's transactional processes. Today, e-procurement solutions have a much broader scope. The chapter identified three different types of e-procurement solutions, including those aimed at supporting e-sourcing, order-to-pay, e-contract and e-SRM. Excellent tools are available to support detailed spend analytics, which should be part of any buyer's professional tool kit. Spend analytics software helps the buyer to extract the data from the company's ERP and general ledger systems to prepare detailed analyses on what the company spends on products, services, suppliers and who actually in the company deals with this. E-marketplaces and e-auctions software supports the buyer in their sourcing activities. It helps them to quickly find the right qualified suppliers to generate maximum competition among them and to arrive at very competitive prices. Order-to-pay and e-contract management solutions allow the buyer to create an infrastructure for their internal organization, where individuals in a controlled way may order anything they want from contracted suppliers on their own, without the interference of anybody. Next, through its online connection with suppliers, it enables automatic payment of supplier invoices. As a result, this category of solutions frees buyers from administrative work, enables a full tracing and tracking of the order and materials flows, and hence reduces the chance for errors. E-SRM solutions enable buyers to trace and track supplier performance per order line. It also helps them to aggregate this data so that they have an overview of their best and worst performing suppliers.

As these digital solutions need to be tailored to the specific situation, there is no single digital solution available for procurement. Rather, every company needs to undertake its own investigations and design its own specific architecture and combination of e-procurement solutions. The benefits of going through this digital transformation journey are vast, as are its costs and investments. E-procurement suites require a long time to implement and to have the organization adapt to new ways of working, which is probably why companies will lag behind for a long time to come in adopting the fascinating digital solutions that are available today.

Assignments

- 14.1** What is the value of an e-auction for a buyer? When would you go for an e-auction? Provide arguments for and against.
- 14.2** What would you consider to be the main differences between digitization and digitalization of procurement?
- 14.3** Some fear that the emerging digital technologies (i.e. AI and blockchain) will make the procurement professional redundant in the future? What is your opinion? What new skills do procurement professionals need to develop in order to stay relevant in the future?
- 14.4** Imagine you are a CPO of a global chemicals company. How would you propose to manage the digital transformation of procurement? Where would you start? What procurement processes would you transform first?

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15 Managing procurement performance

Learning objectives

After studying this chapter you should understand the following:

- The factors that influence the way performance is managed in procurement.
- The key areas that should be considered when measuring and evaluating procurement performance.
- The methods, techniques and performance measures that can be used.
- How to conduct a procurement audit as a tool to improve procurement performance.

Introduction

As has been described in the previous chapters, procurement is no longer just the traditional source-order-pay cycle, it has grown into a strategic business function that plays an important part in the business's growth strategy. The responsible procurement leader needs to monitor, measure and manage the performance of their team. Procurement metrics are the most effective way to measure the performance of the procurement team. Procurement KPIs are essential to evaluate and measure the performance of the procurement process.

At this very moment, many CEOs are developing a new strategic course for their company, often with an ambition to increase financial results in all of its business sectors and in the countries where it is represented. It could be that they want to reinforce their marketing focus, start a cost reduction programme or invest in innovation. Most likely its business operations and procurement strategy need to be realigned to fit the new business strategies. New strategic goals for procurement often involve more efficient processes (e.g. automation of P2P, doing more with less staff) and higher contributions to the bottom line (e.g. cost savings) and top line (e.g. supplier enabled innovation and/or business development). The procurement mission and strategies need to be reviewed and reformulated, and need to be translated into clear procurement targets and actions before implementation can start. Finally, these targets and actions need to be measured and monitored in terms of the actual results that they accrue. The question is, however, how to monitor and measure these procurement results, both at the business unit level and the corporate level. Which key performance indicators (KPIs) should be incorporated in

the procurement dashboard? What do they look like? How should they be measured to provide management with relevant and reliable management information?

What gets measured gets done is a famous saying. But it's not so easy as it sounds. When reviewing how procurement performance is measured, it is one of the least developed areas and many companies struggle with it. Some of the issues that arise are:

- Targets and objectives that would need to guide procurement performance activities are ambiguous and not understood in the company.
- Important elements of procurement performance (e.g. ROI contribution, cash savings, working capital improvements or risk management) are missing or not covered by KPIs.
- KPIs are insufficiently supported by up-to-date IT systems, which impedes regular and consistent performance reporting, resulting in a lack of credibility and support of both procurement staff and business management.

The case study illustrates the fact that measuring and evaluating procurement performance is a fuzzy issue, yet one of major concern for many companies. The question of how to measure and evaluate procurement performance is not easily answered. A major problem is that to date no single, practical approach that produces consistent results for different types of companies has been found. It is highly uncertain whether such a yardstick or method of universal application could be developed.

This chapter will explain why. The consequence is that general managers and procurement managers typically need to rely on their own insight and experience when establishing procedures and systems to monitor the effectiveness and efficiency of their procurement organizations.

The intention of this chapter is to develop a consistent approach to the subject and specific questions to be addressed are:

- Why should procurement performance be measured and evaluated? What are the major benefits to be derived from such an activity?
- What problems are involved in assessing procurement performance?
- What should be measured and evaluated?
- What measures and techniques exist to perform such an evaluation?
- How could an evaluation system be implemented?
- How should procurement processes be benchmarked?

Case study

Managing quality improvement

The strategy of a large manufacturer of industrial components is to become a quality leader in the field.

According to management's view, quality improvement is the only way to survive in the highly competitive environment. Management is aware of the direct relationship between the product quality and process quality, and that high-quality components can only be manufactured if the manufacturing processes are in full control. Therefore, it was decided to comply with ISO 9001 standards and a quality manager was appointed to help the organization make the necessary transitions.

The task of the quality manager was, more specifically, to support the company's departments into developing their own quality programmes. Furthermore, they had to ensure that the targets, as agreed by the departmental managers, were realized.

The procurement department was actively involved in the company's quality programme and, like their colleagues, the procurement manager came up with a quality programme for this department. However, as time went by, the programme met with little enthusiasm from its buyers to support the plan.

Gradually the procurement manager got the feeling that the staff would regard the implementation of the quality plan to be primarily a responsibility of the quality manager. Later, through complaints from production, they discovered that their buyers, in their contracts with suppliers, primarily discussed price rather than quality. When discussing this matter with the quality manager it became clear that targets concerning quality improvement were translated insufficiently into individual buyer targets. It was not clear to the quality manager how each individual buyer would contribute to the overall quality objectives of the company. On the other hand, objectives with regard to price reduction were readily available and specified per buyer in a fair degree of detail. Every month individual buyers were assessed on their budget results by comparing actual prices with budgeted prices. Variance reports were prepared on each buyer's activity and discussed in the monthly meeting of the procurement team. The procurement manager eventually found out that their buyers primarily responded to what they were evaluated on and paid for (i.e. price reduction), not on what they were expected to do (i.e. improve quality). Clearly, the present situation could not continue. They started to think about how to change the situation.

Factors influencing procurement performance measurement

One of the most important factors that influences the way in which procurement results are measured is how management looks upon the role and the importance of the procurement function. As procurement develops over time, management will view procurement differently in each of the six stages of the procurement development model (Chapter 3). In general, management may hold one of the following views towards procurement:

- Operational, administrative activity (Stage 1 – Transactional orientation). In this case management evaluates procurement operations primarily on parameters such as order backlog, administrative lead-times, number of orders issued, number of requests for quotations issued, adherence to existing procedures, number of complaints, number of late deliveries, number of stock-outs, etc.
- Commercial activity (Stages 2–3 – Commercial and Coordination orientation). In this situation management is aware of the savings potential which procurement may represent. Targets are agreed upon annually with the procurement department on price or cost reduction. Procurement should issue competitive bids to suppliers in order to keep them sharp. Parameters being used here are the total savings reported by procurement (per product group and per buyer), number of quotations issued, variance reports, inflation reports, etc.
- Part of supply chain management (Stages 4–5 – Internal and external integration). Management becomes aware that pressing suppliers for lower prices has its drawbacks and may lead to sub-optimization. Putting too much pressure on prices may seduce buyers to buy 'penny wise and pound foolish'. Demands for lower prices always appear to be met by suppliers to the detriment of quality and delivery reliability. At this stage, in addition to cost reduction targets, management introduces targets to buyers on quality improvement, inventory reduction, improving payment terms, lead-time reduction and improving supplier delivery reliability.

- Strategic business function (Stages 5–6 – Value chain orientation). Here, procurement is actively involved in deciding on the company's future business strategy and how to strengthen the company's competitive position. It is actively engaged in make-or-buy studies leading to outsourcing decisions. Local suppliers are consistently put to the test of international competition. Here, management evaluates procurement on a number of aspects including supply base reduction, the number of new (international) suppliers being contracted, its contribution to the bottom line in terms of savings realized and its contribution to the top line in terms of new business revenues generated through suppliers (e.g. new product development, time-to-market improvement)

Procurement effectiveness The extent to which, by choosing a certain course of action, a previously established goal or standard is being met.

Depending on the prevailing view, the role and position of the procurement department will differ, and the measures used for managing procurement's performance will differ significantly. As shown in Table 15.1, when procurement is seen as an operational function, performance measures are largely quantitative and administrative in character. On the other hand, when procurement is considered to be a strategic business function, performance measures are also qualitative and strategic. In this case, a complex framework of procedures and guidelines typically is used to monitor progress against specific plans to improve **procurement effectiveness**.

Table 15.1 How management may look at procurement

Alternative viewpoints on the role of procurement	Position of procurement	Performance measures
Procurement as an operational administrative function	Low in organization	Number of orders, order backlog, procurement administration lead-time, authorization, procedures, etc.
Procurement as a commercial function	Reporting to management	Savings, price reduction, ROI measures, inflation reports, variance reports
Procurement as part of supply chain management	Procurement (partly) integrated with other supply chain functions	Savings, cost reduction, supplier delivery reliability, quality, reject rates, lead-time reduction
Procurement as a strategic business function	Procurement represented in top management	'Should cost' analysis, early supplier involvement, make-or-buy, value chain optimization, business development

Which factors determine the prevailing procurement mode? Firms that consider procurement as a strategic business function are frequently forced to do so by external factors, such as strong competitive pressure on prices and margins, loss of market share, the need for severe cost reduction on incoming materials, and severe price fluctuations in their supply markets. These issues often force CPOs to focus their attention on striving for higher levels of procurement performance. In addition, internal factors may also affect or change the view that management holds towards procurement. Among these are factors such as management style, the extent to which supply chain management has been implemented within the company, the degree to which digital technologies are available, the extent to which sustainability concepts have been introduced and applied, etc.

In summary, it can be said that the way procurement activities are measured and judged will be different for every company. This makes it almost impossible to develop one uniform yardstick, methodology or system for performance measurement in procurement.

Why measure procurement performance?

What benefits can be derived from a systematic approach towards procurement performance evaluation? Many procurement managers were asked this question during one of the authors' surveys and their answers are summarized in the following statements:

- Procurement performance evaluation will lead to better decision-making since it identifies variances from planned results; these variances can be analyzed to determine their causes and action can be taken to prevent their occurrence in the future.
- It may lead to better communication with other departments, e.g. analyzing the number of invoices that cannot be matched with a purchase order (PO) leads to better arrangements in payment procedures and improves mutual understanding between the procurement department and financial administration.
- It creates transparency, as regular reporting of actual versus planned results enables a buyer to verify whether their expectations, i.e. targets, have been realized. This provides constructive feedback to the buyer and it also provides information to management about individual and group performance, and hence contributes to the recognition of the procurement department.
- It may contribute to better motivation, as properly designed a performance evaluation system can meet the personal and motivational needs of the buyer. It can be used effectively for constructive goal setting, and motivational and personal development programmes in procurement.

Collectively, these comments indicate that procurement performance measurement and evaluation should result in a higher added value of the procurement department to the firm. This added value might take the form of cost reductions, lower material prices, fewer rejects of incoming goods, better sourcing decisions, etc.

Procurement performance should be evaluated regularly for two reasons. First, performance evaluation should be conducted to rate the individual buyer. In this sense, measurement is used primarily to serve the purposes of functional and individual performance assessment. Second, systematic performance assessment should serve the purpose of self-appraisal. In this sense, improvement of procurement activities can be achieved most effectively by enabling each buyer to assess the results of their own procurement activities. Hence, the evaluation activity is directed towards support of the individual buyer in doing a better professional job.

Most procurement managers think that the procurement department is one of the more difficult departments to evaluate. Based upon our own experience we would say that, certainly in comparison with other business areas, this is not necessarily true. Advanced business software packages (ERP solutions, spend analytics, savings trackers, etc.) have improved possibilities to trace and track procurement information considerably. However, there are some major problems that make it difficult to evaluate procurement performance. One is the lack of definition. Although frequently used in practice as well as in theory, terms like procurement performance, procurement effectiveness and procurement efficiency have not been precisely defined. Some authors even use these concepts interchangeably.

Another problem is the lack of formal objectives and performance standards. The objectives and targets of the procurement function in companies are often not clearly defined. When clear targets are missing, it will be difficult to evaluate performance in objective terms. A third problem is related to the accuracy with which procurement performance actually can be measured. Procurement is not an isolated function. Procurement performance is a result of many activities which, due to their intangible character, are difficult to evaluate. In general, direct input-output relationships are difficult to identify. Just increasing the number of buyers in an organization will not necessarily lead to better results.

The lack of a straightforward input-output relationship in procurement seriously limits the possibility of measuring and evaluating procurement activities in an accurate and comprehensive way. Memo 15.1 illustrates this problem. A final problem is related to the differences in the role and position of procurement. As was argued in previous chapters, procurement tasks and responsibilities differ greatly from one company to another, even within the same industry. This precludes the development of a uniform benchmarking and evaluation system for procurement.

Memo 15.1

How to measure procurement performance

A large, multinational company was looking for a young, ambitious procurement manager. The candidate, when given the job, was required to accept the challenge to reduce procurement costs by 5 per cent within one year. When asked if he felt uncomfortable

with this target, the appointee said: 'Not at all. Management still has to make up their mind how they are going to measure procurement cost savings'.



How to assess procurement performance?

In order to decide what should be measured, it is necessary first to define procurement performance. For the purpose of this chapter, procurement performance is considered to be the outcome of two elements: procurement effectiveness and procurement efficiency.

Procurement effectiveness is defined as the extent to which, by choosing a certain course of action, a previously established goal or standard is being met. It is important to recognize that effectiveness essentially refers to the relationship between actual and planned performance of any human activity. Procurement effectiveness relates to the degree to which previously established goals and objectives have been met. A strategy or activity is either effective or not; a goal has been reached or not. However, the goal can be expressed in terms of aspiration levels; the strategy or action that realizes a higher level may then be considered as more effective than another.

Procurement efficiency is defined as the relationship between planned and actual sacrifices made in order to realize a goal previously agreed upon. Procurement efficiency, then, is related to the resources which are required to realize the previously established goals and objectives and their related activities. Essentially it refers to the relationship between planned and actual costs.

Procurement efficiency Related to the resources which are required to realize the previously established goals and objectives and their related activities. Essentially, it refers to the relationship between planned and actual costs.

Procurement performance can thus be considered as the extent to which the procurement function is able to realize its predetermined goals at the sacrifice of a minimum of the company's resources, i.e. costs.

This definition is very relevant. It assumes that any evaluation of procurement activities would include both measures related to effectiveness and to efficiency. But this is not sufficient. Also, a differentiation needs to be made between procurement's strategic and operational contribution. The first is related to building superior relationships with best-in-class suppliers across the company's supply chains, which will help the company to achieve superior procurement performance and a competitive advantage. To be able to do so, the procurement function needs to provide for superior processes, systems and competencies. All these activities should result in a situation in which the company's supply chain performs better than the supply chains of its main competitors. Procurement's strategic contribution should translate into superior operational performance. This performance relates to flawless procurement and business processes that are operated at the lowest possible cost. Procurement's operational performance is demonstrated by superior material cost control, superior supplier delivery performance, superior supplier delivery lead-times, superior supplier product quality and superior supplier sustainability performance.

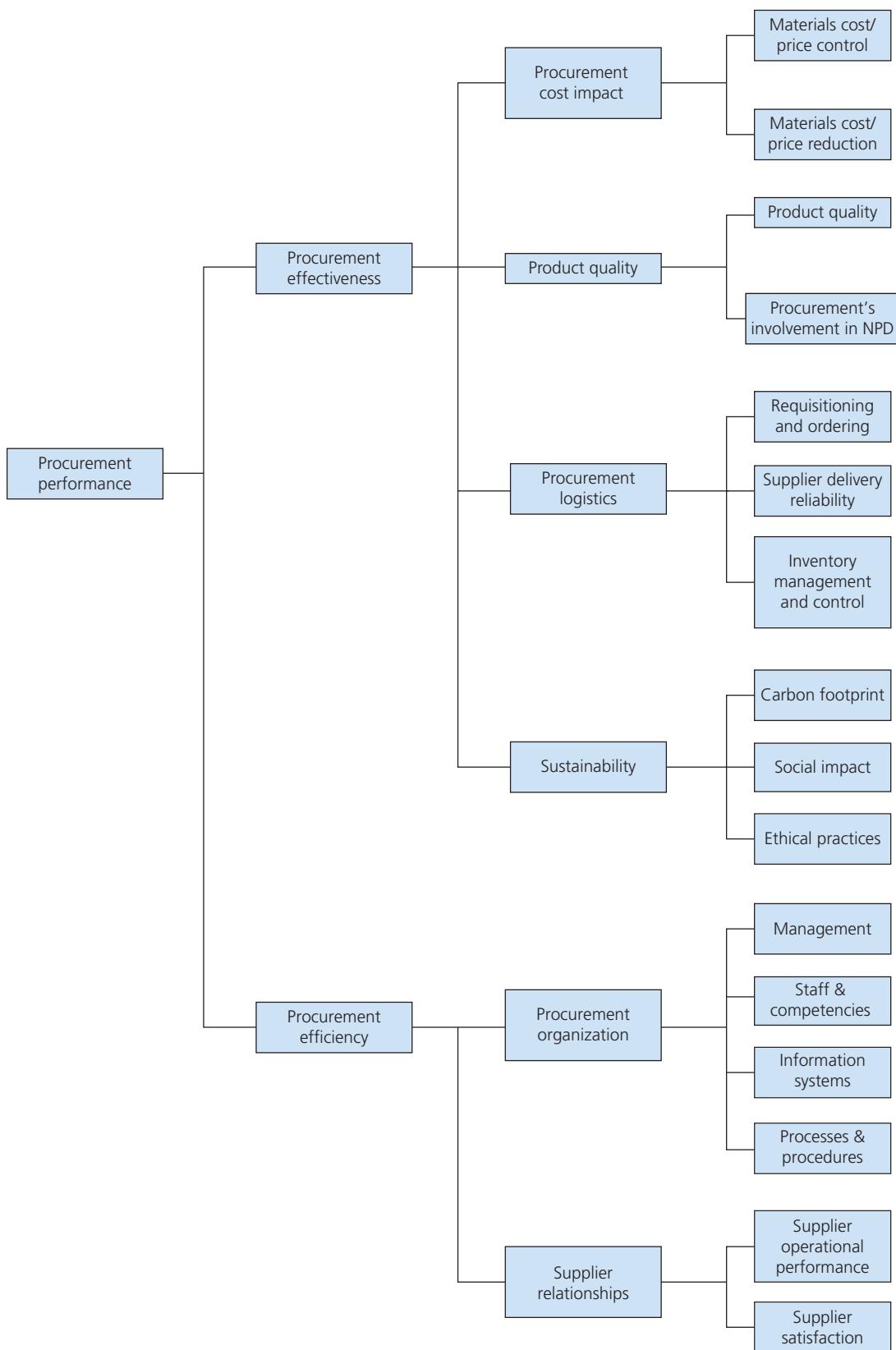
The relationship between these dimensions is illustrated by Figure 15.1 and discussed in detail in the following section.

Measuring procurement performance: key areas

Procurement effectiveness is thus related to the goals and objectives of the procurement function. The classical statement summarizing the overall objectives of the procurement function is that it should obtain the right material, in the right quantity, from the right supplier, at the right time, at the right place and at the right price. Next, procurement should contribute to product and process improvement and control in order to reduce the company's overall supply (chain) risk. Procurement efficiency relates, as has been argued before, to the resources which are required in order to meet the objectives that have been set for the procurement function. Therefore, efficiency relates to the procurement organization. More specifically it relates to the way procurement is organized, the systems that are in place, the processes, tools and templates that are being used, and whether people are productive in performing their procurement jobs. Next, efficiency also relates to having high quality supplier relationships in place that result in superior supplier performance. To make this happen it is important that suppliers are satisfied with the working relationships they have with their customers. In line with this discussion, six performance dimensions are suggested on which measurement and evaluation of the procurement function can be based:

- a price/cost dimension
- a product/quality dimension
- a sustainability dimension
- a logistics/delivery (supply chain) dimension
- a supplier relationship dimension
- an organizational dimension.

Each of these dimensions is discussed in more detail next.

Figure 15.1 Key areas of procurement performance measurement

PRICE/COST DIMENSION

This dimension refers to the relationship between standard and actual prices paid for materials and services. Here, a distinction is made between:

- Price/cost control. Refers to the continuous monitoring and evaluation of prices and price increases as they are charged by suppliers. Examples of reports and measures to be used are materials budgets, price inflation reports, variance reports, etc. The main objective here is to monitor prices in order to control them and to prevent them getting out of hand.
- Price/cost reduction. Relates to the continuous monitoring and evaluation of activities initiated to reduce costs in a structured way associated with purchased materials and services. Cost reduction may be the result of searches for new suppliers or substitute materials, value analysis or co-ordination of procurement requirements among business units. The main objective here is to monitor those activities which have been initiated to structurally reduce materials costs. Budgets and cost savings reports are important instruments for performance planning and monitoring with regard to the price/cost dimension.

PRODUCT QUALITY DIMENSION

Procurement's responsibility with regard to the quality of purchased materials and services should not be defined too narrowly. The following can be differentiated:

- Procurement's contribution to total quality management. After product specifications have been released by the internal customers it is procurement's job to ensure that goods and services ordered are delivered according to the company's specifications. Here, parameters are being used such as reject rates on incoming goods, line reject rates, number of approved suppliers, number of certified suppliers, number of reject reports, number of supplier quality agreements, number of ISO certified suppliers, etc. These measures indicate to what extent the company is able to secure a flawless incoming materials flow from suppliers.
- Procurement's involvement in new product development. This relates to procurement's contribution to product innovation. Obviously, it is important that the organization's new product plans in terms of target cost and time-to-market are being met by all disciplines involved, including procurement and suppliers. Measures to be used here are the number of hours spent by procurement on innovation projects, the number of engineering hours spent by suppliers and the project's overall lead-time. Specific measures are the number of technical change orders and the initial sampling reject rate. The former relates to the number of engineering changes that have to be communicated to suppliers. The latter relates to the number of times a sample or prototype of a component for a new product needs to be presented by the supplier to have it approved by engineering. Measures of these activities will indicate why new product development projects are becoming out of control both in terms of costs and time-to-market.

LOGISTICS/DELIVERY AND SCM DIMENSION

Another key performance area is procurement's role in contributing to an efficient incoming flow of purchased materials and services. This area includes the following major activities:

- Control of the timely and accurate handling of procurement requisitions. Measures used here are the number of procurement requisitions handled per week or per buyer, average procurement administrative lead-time, number of orders issued and order backlog. Important measures to improve performance in this area are digital ordering and payment systems, introducing e-commerce solutions to internal customers and suppliers, and EDI.
- Control of timely delivery by suppliers. Measures which can be used here are supplier delivery reliability, materials shortages, over/under delivery and number of JIT deliveries. These measures indicate the level of control over the incoming materials flow.
- Control of quantities delivered. In some cases, procurement has the responsibility for determination and control of inventory levels. Measures used here are inventory turnover ratio, number of over/under deliveries, average order size, pipeline inventory, etc.

SUSTAINABILITY DIMENSION

One of today's key responsibilities for procurement is to secure the sustainability of purchased materials and services. In this respect, procurement professionals are not only focusing on the product level, but also on supplier and supply chain level. With sustainability programmes in procurement, companies aim to improve their carbon footprint, reduce waste, improve fuel efficiency and set high standards for ethics, labour conditions and safety in their supply chains. A wide range of sustainability KPIs are found in practice. Some of the measures used by procurement managers are: the percentage of suppliers that signed the supplier sustainability code of conduct, the percentage of spend that is sourced sustainably, the number of supplier sustainability audits that were conducted. Next, measures may reflect actual carbon emission reduction, energy use reduction, waste reduction, number of casualties/injuries of workers and number of supplier code of conduct violations.

PROCUREMENT ORGANIZATION DIMENSION

This dimension includes the major internal resources that are used to achieve the goals and objectives of the procurement organization, namely:

- Procurement staff. This relates to background, level, training and development, and competencies of procurement personnel and its costs.
- Procurement management. This refers to the way the procurement department is organized and strategically managed. It relates to the quality and availability of procurement strategies, action plans and reporting procedures. It also relates to management style and communications structure.
- Procurement processes, tools and templates. This refers to the availability of clear procedures and working instructions for procurement staff and suppliers in order to make sure that work is done in the most efficient manner.
- Procurement systems. This subject relates to the efforts made to implement and/or improve the digital systems which are required to support procurement staff and other employees in their daily (procurement) activities and to generate necessary management information on procurement activities and performance.

SUPPLIER RELATIONSHIP DIMENSION

This dimension includes the major external resources that are used to achieve the goals and objectives of the procurement organization, namely: supplier relationships. Supplier relationships can be measured through operational measures and strategic measures:

- Operational supplier relationship measures. These include measures aimed at monitoring the operational relationship with the supplier. Examples are supplier price versus targeted price, supplier quality, supplier invoice processing quality (i.e. the number of invoices processed without difficulties), supplier delivery reliability and compliance with sustainability standards/ targets.
- Strategic supplier relationship measures. These include measures aimed at monitoring the buying company's position versus its suppliers. Examples are internal customer satisfaction of specific suppliers. Other examples are related to monitoring the quality of relationships with key suppliers. Conducting (bi)annual supplier satisfaction surveys is one way of doing that. Scores would include on-time payment, speedy response on supplier requests for information, ease of getting new business and customer integrity.

Table 15.2 provides an overview of the key areas of procurement performance evaluation and some examples of performance parameters which can be used per key area. A comprehensive assessment of any procurement organization should cover each of these areas, individually and collectively. Hence, it follows that a comprehensive performance measurement system in procurement should monitor effectiveness as well as efficiency and therefore should include, preferably, measures of each key performance area.

Interrelationships exist between all dimensions. For example, if procurement pushes too hard for lower prices, this action may ultimately affect material quality negatively. The reverse may also be true: the requirement of a zero defects quality level may ultimately result in higher material prices. However, the result may be less unplanned downtime in production and, hence, a lower total cost of ownership.

Finally, each of the six dimensions can be measured and evaluated at different levels of aggregation, i.e. per line-item level, per individual supplier level, per individual buyer, at departmental level, at the overall company level. It is therefore clear that performance measurement systems in procurement will show a large degree of variation. Procurement performance measures and reporting systems need to be tailored to the specific needs of the company.

Future performance measurements

The traditional procurement performance measures presented in this chapter (e.g. purchased item cost reduction, delivery performance (on time), conformance to quality requirements, cost measures, reduced inventory and procurement ROI) are used to monitor performance on a monthly, quarterly or annual basis. Supported by procurement information systems it has become relatively easy to capture measurement data and also to make fast comparisons, shortening the time from measurement to analysis and to (corrective) action.

Table 15.2 Examples of procurement performance indicators

Area	Measurement aimed at	Continuous/ incidental	Examples
Product prices and costs dimension	Purchased materials cost control	C	Materials budgets, variance reports, price inflation, reports, procurement turnover
	Purchased materials cost reduction	C	Procurement cost saving and avoidances, impact on return and investment
Product quality of purchased materials	Early procurement involvement in design and development	I	Time spent by procurement on design and engineering projects, initial sampling reject rate (%)
	Incoming inspection quality control and assurance	C	Reject rate (%), line reject rate (%), quality costs per supplier
Sustainability dimension	Compliance with sustainability standards	I	% of suppliers that have been CSR audited, CO ₂ emission reduction per supplier, # of supplier code of conduct violations
Procurement logistics and supply chain management dimension	Monitoring requisitioning	C	Procurement administrative lead-times, order backlog (per buyer)
Procurement organization dimension	Training and motivation of procurement staff	I	Time and workload analysis of procurement department, procurement departmental budget, procurement and supply audit.
	Procurement management quality	I	
	Procurement processes, tools and template	I	
Supplier relationship dimension	Digital procurement systems	I	
	Supplier operational performance	C	Rush orders, delivery reliability index per supplier, materials shortages, inventory turnover ratio, JIT deliveries, supplier quality cost, supplier reject rate, OTIF (On Time in Full) score
	Supplier relationship	I	Supplier satisfaction score

However, as procurement develops over time, traditional performance measures are not sufficient any more. A business-driven procurement function (Stages 4/5/6 in the procurement development model) is oriented to lowering total costs of ownership (TCO), managing supply chain risks, as well as to contributing value to the business. So actions will not only be aimed at reducing cost but also at reducing (in)direct costs, improving process efficiency, optimizing supply chain relationships and creating new business solutions. This could be done for different products and services. Also, sourcing strategies are often more focused on developing long-term relationships instead of ‘playing the market’ and putting pressure on suppliers to obtain the lowest price possible. The buying company works closely together with a limited number of suppliers during a longer period of time, sometimes without the intent to move to an alternative supplier. The relationship between price and value, then, becomes much more complex.

Therefore, different and more complex performance measures and metrics might be used to monitor procurement performance. As an example, refer to Memo 15.2 on how IKEA improved sustainability performance in one of its supply chains.

Memo 15.2

Making the IKEA catalogue more sustainable

The sustainability credentials of IKEA, progressive in renewable energy and the elimination of single-use plastic, might fall short in one important way: mass-mailing customers with paper product catalogues that they did not ask for. Customers in different parts of the world complained about IKEA wasting resources. With more than 200 million copies the famous IKEA catalogue was the largest annual print job in the world. The amount of energy, paper, ink and other materials required to produce the catalogue is mind boggling. Pressured by NGOs (e.g. WWF) and changing customer demands, IKEA started in 2014 to seriously work on improving the catalogue's sustainability performance.

Realizing that improving sustainability requires the engagement of all suppliers across the catalogue supply chain, IKEA decided to take a holistic approach and establish a sustainability-driven supply chain. The first step was to map the entire supply chain. Before a catalogue can be distributed by IKEA to its customers, it needs to be printed and for that you need paper, which is produced from pulp. In order to monitor sustainability performance across the supply chain, IKEA asked all suppliers involved to share detailed environmental performance data via predefined templates. Different industry specific sustainability performance measures were used, for example:

- Pulp production (e.g. total CO₂ emissions, total energy use, total water/air use per ton pulp, (non-)hazardous/organic waste, amount and mode of transport used, amount of FSC fibres used, etc.)
- Paper production (e.g. sustainable sources of pulp used, electrical/thermal energy sold to the grid, total CO₂ emissions, total energy use, total water/air use, (non-)hazardous/organic waste per, amount and mode of transport used, amount of FSC fibre used, amount of recycled fibres used, etc.)
- Printing (e.g. total quantity product printed, total quantity of paper consumed, total energy used,

CO₂ emissions per ton
printed product, total
water consumption, total
VOC consumption, total
amount of (non-)hazardous waste, amount and
mode of transport used, etc.)



All this data was processed in one online big-data supply chain scorecard, which makes thousands of data points visible in comprehensible performance dashboards. This allows IKEA purchasers and suppliers to instantly see where improvements could be made and make critical decisions faster, better and with lasting positive results. According to an IKEA Sustainability manager: 'I knew that, as a big player, IKEA had the leverage to drive a transition toward greater sustainability in our own paper and print supply chain. This project has helped us push sustainability up on the agenda of our suppliers and make it an integral part of our negotiations, away from just discussions between sustainability specialists. That is where the magic happens and its far beyond what we originally expected or imagined.'

The supply chain scorecard consisted of 18 KPIs summarizing 100 sustainability, quality and economic metrics of more than 130 IKEA supplier locations worldwide. The performance data allows IKEA procurement managers to rate and rank any subset of suppliers against any subset of KPIs, which helps them to select more sustainable suppliers with greater ease, accuracy and certainty. Also, the scorecard offers suppliers clear feedback on their sustainability performance. Suppliers can see how they compare against anonymous competitors and relative to the IKEA sustainability KPIs. It also shares best practices with suppliers to help them improve faster. It also includes a game-based incentive system with reward badges that recognize suppliers for top performance or quick improvement. All this helps suppliers to optimize their practices and increase their business with IKEA.

THE RESULTS

The supply chain scorecard resulted in massive sustainability gains between 2014 and 2016. CO₂ emissions per catalogue dropped by 28 per cent and energy consumption per copy went down by 5 per cent. That may sound modest, but with a print run that has an energy footprint the size of a small country, this adds up to hundreds of thousands of barrels of oil left in the ground each year. Plus, the use of renewable energy increased 30 per cent and water consumption diminished by double digits. Finally, the IKEA catalogue is the largest print production ever to be printed on 100 per cent Forest Stewardship Council™ certified paper and to carry the FSC™ logo.

Notwithstanding the great achievements made, IKEA in December 2020 announced that the 2021 catalogue would be its last paper catalogue after using it as their central marketing tool for 70 years. 'It has been one of our best-known and best-loved products for 70 years, inspiring billions of people around the world', an IKEA manager, said in a statement. However, IKEA's online solutions made them decide to 'respectfully end the successful career of the IKEA catalogue'.

Source: Adapted from Horsten, T. (2017) IKEA catalogue supply chain dashboards, www.except.nl/nl/projects/494-ikea-catalogue-story-of-print, and other public sources available on the internet.

Procurement scorecard

The balanced scorecard (BSC), as developed by Kaplan and Norton (1992), aims to measure and monitor progress towards strategic business targets. The name comes from the idea of looking at a broader set of performance measures next to traditional financial measures (i.e. turnover, profit) to get a more balanced view of performance. Originally, the BSC pointed to four areas that should be subject to measurement: financials, customers, processes, and learning and growth. The BSC approach is used extensively in both profit and non-profit organizations worldwide and has been selected by *Harvard Business Review* as one of the most influential business ideas of the past 75 years. There are no specific procurement measures included in the original model, but CPOs can decide themselves on what important areas (e.g. financials) and performance indicators (e.g. cost savings) they want to monitor. A number of performance indicators that CPOs often include in their procurement scorecards are:

- 1** Cost savings. Still the number one performance indicator. Different types of savings can be identified: hard savings, soft savings, repetitive savings and one-off savings.
- 2** Cash improvements. Contribution to a better ROI or working capital improvement via extension of payment terms, reversed factoring, inventory reduction through JIT and/or VMI, outsource and lease back, etc.
- 3** Compliance. Internal process compliance (% spend covered by approved POs, % spend under formal contract, contract compliance, # approved suppliers). External supplier compliance against contract (on time delivery, delivery within spec, delivery within volume, number of complaints, supplier response lead-time).
- 4** Risk management. Managing contract and supply risks. Contract coverage rate: % requirements not secured by a formal contract. Supplier risk: number (and contract value) related to single or sole sources of supply.
- 5** Value creation. Contribution to topline growth by quality improvement and by bringing market innovations to the company (# supplier innovation projects, business impact of supplier innovation) and contribution to sustainability (# CSR improvement projects, CSR improvement results, CO₂ carbon footprint reduction of the company's top 50 suppliers).

In addition to these five, one could also think of areas such as procurement excellence, sustainability, people (e.g. training and competence development), supplier relations (e.g. key supplier agreements, supplier satisfaction) and procurement digitalization. All individual areas and performance indicators can be integrated into one procurement scorecard (refer to Figure 15.2).

Figure 15.2 Example of a procurement scorecard

Source: Ton Geurts (former CPO at Bekaert, 2018). Reproduced with permission.

Financials  <ol style="list-style-type: none"> 1. Business impact: <ul style="list-style-type: none"> • Total annualized savings • Incremental annualized savings • WC - payment terms 2. Enablers/operational: <ul style="list-style-type: none"> • Competitive edge/indices (month report embedded in business) • On time delivery 	Supplier relations  <ol style="list-style-type: none"> 1. Partnerships <ul style="list-style-type: none"> • Key supplier agreement (% of wire rod spend) • Roll out key supplier agreement (steering committee innovation, rolling forecast, sustainability) • % Suppliers code of conduct (% of spend) • Supplier requirement manual (top 10 suppliers with % of spend of goods categories)
Procurement excellence  <ol style="list-style-type: none"> 1. Compliance/internal audit <ul style="list-style-type: none"> • CoC accepted by all B4 and above • Zero high non-conformity incidents 2. Risk <ul style="list-style-type: none"> • Establishing the ERM plan on identified cases of single sourcing and execute in year cases 3. Audit <ul style="list-style-type: none"> • # Suppliers audited together with quality department 	Sustainability  <ol style="list-style-type: none"> 1. Compliance <ul style="list-style-type: none"> • Comply with GRI G4 guidelines (implementation of agreed actions) 2. Supplier assessment <ul style="list-style-type: none"> • Ecovadis: implementation of agreed actions by end 2016 for vendors < 45 • Ecovadis: enroll new vendors (2 Latam, 2 Central Europe and 2 Asia, 6/category)
Processes  <ol style="list-style-type: none"> 1. P2P efficiency (supported by the purchasing policy) <ul style="list-style-type: none"> • PO coverage • PO creation efficiency • PO output efficiency • # exception flows/total invoices 2. Select and implement new connectivity platform 3. Supply chain processes/S&OP, design & rollout NAM/other businesses 	People  <ol style="list-style-type: none"> 1. Full transparency on R&R with industrial projects, engineering and quality (action plan % implemented by Nov) 2. Focused training curriculum (action plan: strategic sourcing, vendor audit, compliance, competition law) 3. Well defined succession planning and execution (action plan % and running by Q4)

The next section deals with some important control instruments for procurement. The following are described: different types of procurement budgets, definition of procurement savings and how to measure them, and performance measures and ratios with regard to quality and delivery.

Procurement budgets, procurement savings and other performance measures

The planning cycle within a company starts by setting the company's annual sales plan. The input comes from next year's sales estimates and new product introduction plans. The sales plan is an important input for the other plans of the company including the production, materials investment, personnel and also the procurement plan. The procurement plan usually breaks down into five different sub-plans, the purchased

materials budget, the procurement budget indirect materials, the investment budget, the supplier tooling budget and the procurement departmental budget.

A budget is the reflection of the resources in quantitative terms related to the personnel, materials and services that are needed for the company's business processes in its broadest sense for a certain period. A budget serves as a vehicle for delegating activities and responsibilities to lower management levels in the organization. When approved by senior management, budget holders may operate rather autonomously as long as they stay within their financial budget.

Procurement materials budget

Reflects, often per product item, the volume which is expected to be purchased for the next planning period, usually a year, and the expected price level for that specific product.

PROCUREMENT MATERIALS BUDGET

The **procurement materials budget** reflects, often per product item, the volume which is expected to be purchased for the next planning period, usually a year, and the expected price level for that specific product. The volume estimate comes from the production and materials requirements plan. The estimate for the price that is expected to be paid has to come from the sourcing manager. Often the final budget estimate is decided after a thorough discussion between the sourcing manager and procurement management to make sure that price targets are set at a challenging level.

Sometimes the price targets are dictated by senior management. Many manufacturing companies are subject to severe cost competition. This results in a strong focus on materials cost reductions. In the automotive industry, yearly cost reductions of 5 per cent are no exception. In this type of company, procurement may account for 80 per cent of the total cost price of a car. In such a case, the target imposed by management on procurement will then amount to 4 per cent (i.e. 0.8×5 per cent) overall cost savings contribution. Based upon this overall target, every sourcing manager should submit detailed action plans to meet the overall goals of the procurement department.

Deciding about the procurement materials budget is a far from simple matter. In customer markets that fluctuate strongly, exact production and materials volumes are hard to predict. In such a situation, it will be difficult to provide a reliable volume forecast to suppliers. If suppliers do not know what volume will come their way, they will not be able to submit a reliable and solid price for the components that they will supply. Budgeting in procurement, therefore, requires a lot of guesswork. Nevertheless, this guesswork is very important. A price estimate that at a later stage appears to have been too high, may lead to an end-product cost and sales price that was too high. As a result of this a company might lose important business to competitors. If the sourcing managers' estimate was too low in hindsight, the company might have sold its products at too low a sales price. As a result, the company's profitability might suffer. The more volatile a market is, the more frequent monitoring of budget performance and adjustment of budgeted targets will be required.

The actual performance against the initial budget is closely monitored through monthly variance reports which indicate, per sourcing manager and component, deviations from the agreed targets. Variance reports are therefore an important tool when it comes to evaluating the performance of individual sourcing managers.

PROCUREMENT BUDGET INDIRECT MATERIALS

Budgeting for indirect materials and services is usually conducted per department per spend category. As the budgets for individual departments have been approved by senior management, the relevant spend for indirect materials and services (and investments)

is aggregated and set out in a coherent spend budget for indirect materials. Usually, this task is conducted by the procurement department. Departmental budgets for indirect sourcing categories are usually based upon historic usage and consumption. The budget for next year is based upon the one from last year, and adapted on the basis of some kind of index (e.g. consumer price index). As was discussed earlier, these budgets cover a wide variety of products and services, ranging from marketing expenditure to IT products and services, facilities goods and services, insurance and temporary labour. Purchase orders for indirect spend may be very different in terms of spend volume and order frequency. All these characteristics make such spend categories hard to manage.

In some cases, for instance in the case of maintenance goods and services, specific planning techniques may be used, allowing for a better control of this indirect spend. Technical maintenance can be based on corrective or preventative maintenance. In the latter case, maintenance is systematically planned for each type of equipment, allowing the procurement department to inform its suppliers in time and allowing an efficient planning of the ordering and deliveries for the components and services involved.

THE INVESTMENT AND TOOLING BUDGET

The investment budget and the tooling budget are not specifically procurement budgets. However, in many cases sourcing managers are involved when these budgets are prepared. Based upon sales forecasts, production planning will provide an estimate of how existing production capacity will be utilized. If the capacity available does not match the required capacity, it needs to be expanded. Investments into additional production capacity then need to be made by the company. An alternative may be to contract the required additional capacity from a specialist subcontractor. In both cases investments must be made. In the first case, additional production equipment needs to be acquired. In the second, investments probably need to be made in specific supplier tooling. This is required, for example, when buying plastic shampoo bottles that require specific moulds to be provided to the supplier by the FMCG company that actually produces and sells the shampoo. In manufacturing companies, therefore, a distinction is made between the investment budget and the supplier tooling budget. The latter relates to planned investments in supplier specific tools. In the automotive industry investments in tooling can be substantial. The actual planning for these budgets normally happens outside the procurement department.

PROCUREMENT DEPARTMENTAL BUDGET

Based upon the overall procurement activity plan and the procurement materials budget, the procurement staff and resources required can be budgeted. The procurement departmental budget (mostly around 1–2 per cent of the total company's payroll) covers all expenses related to the salaries paid to procurement staff, social security and taxes, travel cost, telephone cost, office cost, IT infrastructure and digital systems costs and other organizational costs (e.g. lease cars, consultants, insurances, training). It will not come as a surprise that this type of budget is among the most used in procurement. Apart from the occasional departmental transformation, in most cases the size of the procurement staff will not fluctuate strongly from year to year. Therefore, this budget is fairly simple to administer. Still, the return on investment

(ROI) against this budget for the procurement organization should be made clear and it should be positive. For example, companies could calculate their procurement ROI by dividing annual spend savings from procurement by the ‘investment’ in procurement resources (i.e. procurement budget). If you save 5 per cent on your total spend and your procurement operating resources cost 1 per cent on your total spend, your procurement ROI is 5. According to industry experts the procurement ROI roughly fluctuates between 5 (average performers) and 10 (high performers), depending on the industry, company and spend category.

PROCUREMENT COST SAVINGS: DEFINITIONS AND MEASURES

Procurement cost savings are among the most popular when it comes to evaluating procurement department and individual buyer performance. However, these measures are also the hardest to measure. The problem is how to define them. There seems to be no general consensus on how to do this.

Cost avoidance A variance between the historical and the actual purchase price paid per unit. A cost avoidance is not considered to be sustainable.

Cost reduction A sustainable reduction in costs resulting from a change in the (functional/technical) specification or switching suppliers.

In general, a distinction is made between **cost avoidances** and **cost reductions**. A cost avoidance is a variance between the historical and the actual purchase price paid per unit. A cost avoidance is not considered to be sustainable. Cost avoidances may be the result of putting extra pressure on a supplier during contract negotiations, playing off suppliers against each other, ordering larger quantities than before resulting in quantity discounts, accepting one-time promotional actions offered by a specific supplier, etc. In contrast, cost reductions are sustainable in character. These may be the result of a change in the specification, a change of supplier or omitting unnecessary product quality requirements (e.g. using a general specification rather than a supplier or product brand name). Another issue to consider is the time horizon. Most common is that cost savings are measured against a 12-month rolling forecast. However, some companies report cost savings against the entire contract period. As measuring cost savings at the moment of concluding the contract is highly subjective, a few companies did decide to measure cost savings using the actual monthly volumes ordered against the price differential (old price minus new price). In doing so, these companies report the actual savings accomplished. Of course, this would require very sophisticated administrative procedures and savings tracking systems.

Since every procurement activity essentially is cross-functional, it is extremely difficult to attribute savings to the procurement department only. If procurement managers are going to claim all the savings that have been generated on their accounts, this will not make them particularly popular among fellow managers. Procurement savings therefore need to be reported at the company level rather than at the procurement departmental level. Cost savings reports that only reflect price effects, may lead to wrong judgements.

When setting up a company-wide procurement cost reduction programme, the following suggestions may be helpful. First, clear savings targets need to be agreed upon upfront that may guide the programme. These targets are not to be compromised during the execution of the programme. Second, external factors that cannot be influenced by the buyers need to be left out of the reporting. This is, for example, the case when market prices go down. In this case, it is not fair to attribute the cost savings to buyer action. Buyers only need to be evaluated on factors that are within their range of influence. Third, a distinction needs to be made between theoretical and actual cost savings. Theoretical cost savings can be calculated as the difference between the historical price

paid less the contract price paid, multiplied by the contracted volume on a 12-month basis. Actual savings ('money in the pocket') may differ greatly from these theoretical savings ('money in the air'). Actual savings are calculated as the difference between the actual price paid and the historical price paid, multiplied by the actual volumes ordered against the contract. Theoretical cost savings are ex ante; actual cost savings are ex post. The difference between the two concepts is referred to as 'contract leakage'. This is an important indicator for measuring contract compliance and maverick buying. Fourth, for reasons of credibility, procurement cost savings cannot be reported by procurement managers. Rather, they should be part of general management reporting and be reported by the CFO or business controller.

Why are these specific guidelines on how to define and report procurement savings needed? Why do companies have so many definitions on procurement cost savings? One of the reasons is that corporate procurement agreements are not always followed in organizations. One of the problems that needs to be overcome is the phenomenon of maverick buying. **Maverick buying** implies that managers in the organization do not automatically follow corporate agreements with contracted suppliers but for some reason stick to their traditional suppliers. If this happens, the expected savings that have been indicated and reported by the procurement manager will not materialize, simply because the contracted volumes will not be made against the contracted prices of the contracted suppliers. As a result, the company misses out on procurement cost savings and end-of-year bonuses.

This is why many procurement managers today keep a sharp eye on procurement cost savings and especially their contract compliance rate. This is the percentage of the volume that has been ordered from contracted suppliers versus the total contract spend. A low contract compliance means a lack of discipline within the company to live up to the agreements made with suppliers. It also, in general, means having missed out on a huge potential for cost savings.

Maverick buying

When managers in the organization are buying outside existing corporate agreements with contracted suppliers and stick to their preferred suppliers.

RATIOS AND KEY PERFORMANCE INDICATORS

Performance ratios can be classified in different ways. We may differentiate between ratios related to price/cost, revenue, inventory, availability, technology/innovation/new product introduction, workforce, supplier performance, operations, sustainability and customer satisfaction. For practical reasons, we limit our discussion to measures related to quality and supply (chain) management.

When measuring the quality of incoming goods and services, in principle the following key performance measures are available:

- percentage rejected deliveries related to the number of total deliveries made
- percentage rejected, but repaired goods
- cost related to repair of incoming goods and services
- line reject rate due to inferior quality of components
- cost related to quality inspection and auditing of incoming goods
- number of credit notes to suppliers and the cost related to non-quality deliveries
- number of quality claims to suppliers and amounts involved.

Sometimes supplier quality performance is expressed by means of an index (refer to Memo 15.3).

Memo 15.3

Supplier quality index: example

This index is based on the frequency and the gravity of the defects related to a specific supplier's deliveries. More serious defects will result in a higher score.



Examples of criteria and weight factors:

Decision with regard to delivery	Weight factor	Action
Return	15	Return to supplier, credit note from supplier
Rejected, but processed to avoid production problems	15	Credit note from supplier for repair work
Acceptable, but slight quality defects	8	Charge inspection cost to supplier
Functionally acceptable, not exactly in line with specification	5	Inform supplier
In line with our specifications	0	No action required

Suppose a supplier makes 20 shipments in a certain time period. In this time period three shipments are returned, five shipments are found to be acceptable and the rest of the shipments are in line with specifications. Hence, the supplier quality index can be calculated as follows:

$$\begin{aligned} \text{Supplier quality index} \\ &= 100 - [(15 \times 3) + (8 \times 5)]/20 \\ &= 95.75 \end{aligned}$$

Using this index allows procurement managers to compare the quality performance of suppliers.

However, they should be careful since not all products have the same technical complexity. For more complex, technical products, 100 per cent quality may be very difficult to realize. For standardized commodities, a 100 per cent quality level may be very easy to realize. Quality indexes therefore should not be used to compare suppliers of different components and products. Rather, they should be used to monitor the quality performance of a specific supplier over time. It is fairly easy to computerize this type of information.

Apart from indexes and the ratios, surveys and special reports can be used to assess procurement. Surveys can be internally as well as externally oriented. Internally they are aimed at assessing internal customer satisfaction with regard to how the procurement department performs in its relationship with its internal customers. Externally, surveys can be used to assess how satisfied suppliers are about doing business with the buying company. How attractive is the buying company compared to other customers of the supplier? The information obtained through these surveys can be used by the procurement manager to improve the organization.

With regard to assessing supply (chain) management performance the following critical performance measures are available:

Ordering:

- procurement administrative lead-time
- procurement order backlog per month
- number of requisitions processed per month

- number of supplier quotations obtained per month
- number of orders issued per month
- number of rush orders per month.

On-time delivery:

- number of on-time deliveries
- number of late deliveries
- number of deliveries made too early
- number of incomplete deliveries
- premium transportation cost due to rush orders.

Payment:

- average payment term versus standard payment term
- number of invoices processed
- number of non-matching invoices
- average invoice value
- number of invoices per supplier.

Supply chain efficiency:

- percentage non-moving inventory
- material shortages per month
- number of partial deliveries
- number of rush orders
- inventory turnover ratio per month
- inventory value per month
- number of outstanding orders (quantity and volume) per month.

When using these types of ratio and performance indicators, procurement managers should be aware that only part of the supply (chain) management problems can be attributed to the supplier. In many cases they result from insufficient materials planning and requisitioning by their own company. Purchase orders can be changed repeatedly, which makes timely and flawless delivery for the supplier a nightmare. Purchase requisitions issued by internal departments can be made not respecting the supplier's lead-time, leading to a high number of rush orders and unnecessary distribution cost. For this reason, we recommend procurement managers differentiate between internal and external performance indicators. Every company gets the supplier that it deserves.

In most cases it is not realistic to keep track of the performance of all suppliers. Therefore, one needs to decide for what products and suppliers such monitoring is required. Here, a distinction can be made between products that are obtained from problematic suppliers, and those that are crucial for the continuity of the company's business processes. Products can be crucial because they cannot be kept in stock. Products can also be crucial because they are on the critical path of project planning.

Another distinction is that between critical and non-critical deliveries. Critical deliveries are those that are beyond their delivery date as a result of which the continuity of the company's business processes is in immediate danger. Non-critical deliveries are orders that are past their delivery date without immediate damage to the company.

Figure 15.3 provides an example of how a supplier reliability index can be calculated. The example shows that a sound procurement information system is a must.

The input necessary for calculating these kinds of indicators cannot be created economically without such an information system. Actual supplier rating scores can be translated into supplier ranking scores (A, B or C suppliers). Such a classification allows the buyer to focus its efforts on those suppliers that need most attention.

Figure 15.3 How to calculate a supplier delivery index (example)

Supplier	Too early in weeks			On time		Too late in weeks			Too many/too few	
	>8	8 to 5	4 to 3	2	1	1	2	3	>4	
Weight factor	0	0	1	1	1	1.0	0.9	0.6	0.2	0.0
PO number										
123456										
234561										
345612										
etc.										

The following example may serve as an illustration:

Supplier X					Delivery time		Quantity	
PO number	Delivery in week	Received in week	Ordered quantity	Quantity received	Weight factor	Score	Weight factor	Score
123456	35	38	120	120	0.2 × 100	20		0
234561	35	32	120	120	0.6 × 100	60		0
345612	35	35	120	120	1 × 100	100		0
456123	35	35	120	130	1 × 100	100	0.5 × (130 – 120)	-5
561234	35	35	120	110	1 × 100	100	0.5 × (120 – 110)	-5
Total						380		-10

Supplier delivery index: (actual score delivery time/maximum score delivery time) × 100 – penalty points delivery

$$\text{quantity} = (380/500) \times 100 - 10 = 76 - 10 = 66$$

Earlier it was argued that one of the problems related to procurement performance measurement is the lack of a direct input–output relationship between the resources that are used in procurement and the results that are obtained from these. As a consequence, procurement as a business function is less measurable than for example production activities where a direct relationship between input and output is much more present. This again implies that procurement managers should need both procurement effectiveness and efficiency measures, and should use measures covering each of the six dimensions of procurement performance. The relationship between these concepts can be assessed using a periodic procurement audit, which is discussed later.

The ratios and performance measures that have been described in this section are sufficient to create a picture of the operational procurement performance. Procurement's

strategic contribution ratios and measures are much harder to obtain. Here a lot of development work is still necessary. CAPS Research (www.capsresearch.org) regularly publishes about procurement performance in different types of industry. Their (proprietary) benchmark reports per industry are very insightful and useful for procurement managers to get an idea of how they perform relative to their colleagues in the same industry.

This type of data can be helpful in identifying whether a procurement department in a specific company is developing in the right direction. Intercompany comparison on just one criterion seems less useful. However, analyzing the position of the procurement organization on the basis of all performance measures will provide a picture of the company's procurement professionalism relative to its competitors.

Procurement audit as a management tool

Through a procurement audit, management may assess the extent to which goals and objectives of the procurement department are balanced with its resources. The procurement audit is a form of action research, the effectiveness of which depends on the expertise with which it is conducted. More important, however, are the actions which are derived from it at a later stage. The audit must therefore be conducted in such a way that people do not feel threatened, and in a way which builds trust and generates professionalism.

Audits can be preventative or corrective in nature. Preventative audits are to be compared with periodic check-ups – with the aid of a limited number of standard checklists, the department is checked to see whether it meets the expectations of its most important stakeholders. Another objective is to see where the procurement processes are conducted in line with the company's overall financial procedures and guidelines. Corrective audits focus on acute problems apparent in the functioning of the department – the situation can be sufficiently grave that immediate treatment is imperative. Based on a quick scan, the (internal) auditor identifies the problems and proposes some alternative solutions, which are then to be carried out as a priority.

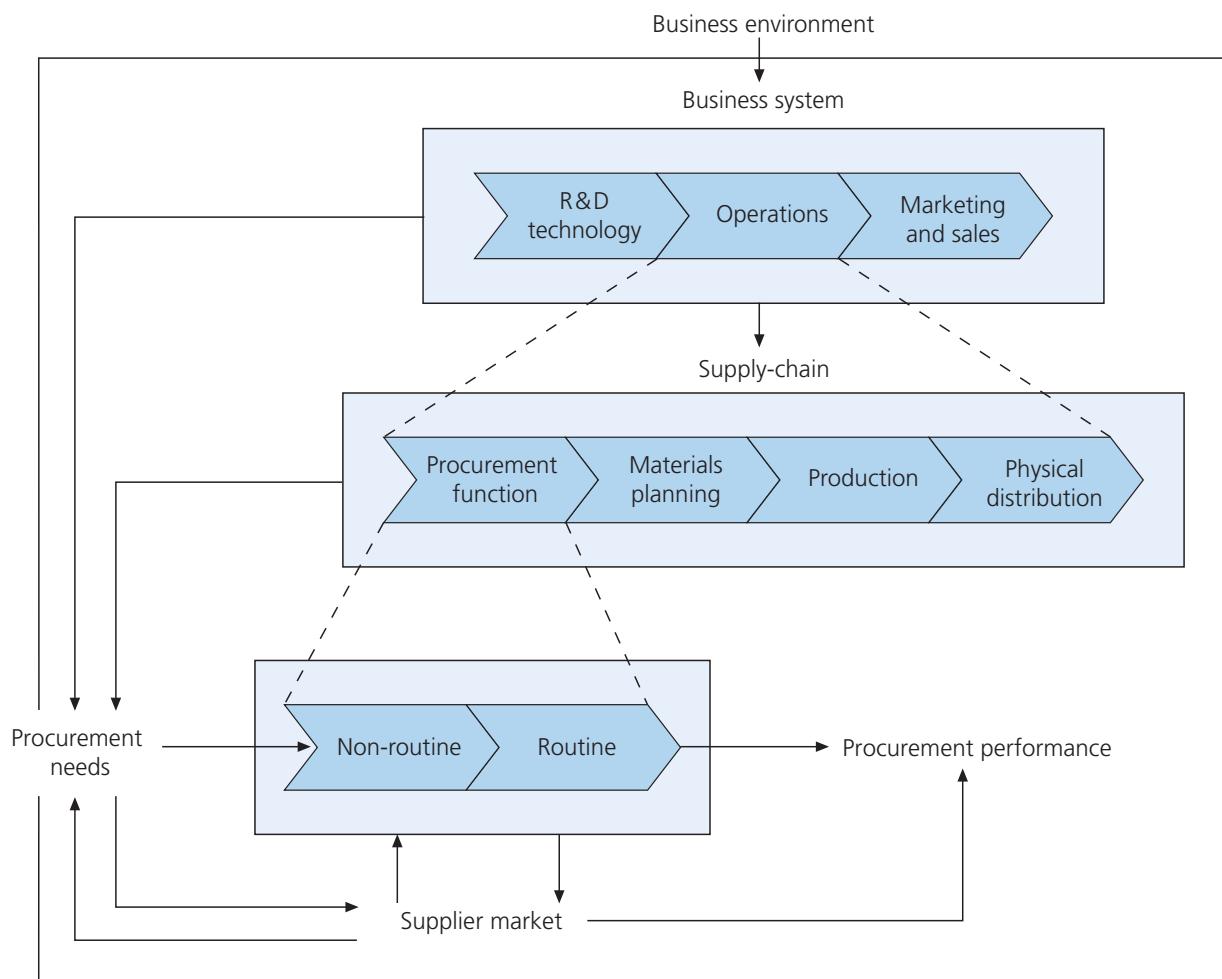
Figure 15.4 shows the points of reference which must be included in a procurement audit. It shows that final procurement performance is affected by several factors:

- The requirements that the corporate system lays down for the procurement function. Procurement policy must be in line with overall company policy; changes in the business system will affect procurement objectives or the required performance of the department.
- Changes in the company's supply chain. The procurement function must respond optimally to the requirements of its internal customers. Changes in the supply chain manifest themselves in changing materials requirements. The procurement department will have to react to these changes or anticipate them flexibly.
- The opportunities provided by the supplier market to fulfil the materials requirements, as defined. Changes in the supplier's technology or in the supplier market can strongly affect materials availability and prices. As noted earlier, suppliers determine, to a large extent, internal customer satisfaction and company performance.

The procurement audit will map the major requirements that the stakeholders lay down to the procurement department, as well as the changes which occur as a result of these requirements. This implies that the audit must pay attention to the quality of the interfaces between procurement and other departments. Regarding the internal performance of the procurement department, a distinction can be made between the tactical, non-routine procurement activities (defining specifications, supply market research, supplier selection, etc.) and the operational, routine procurement activities (e.g. order processing, expediting, invoice handling, supplier rating, etc.).

Figure 15.4 Elements of a procurement audit

Source: Van Weele (1991, p. 131).



The starting point is the intake interview in which the auditor clarifies the goals and structure of the audit. This is done in a meeting with the CPO or procurement director. The auditor explains what can be expected of the audit as well as the methods to be used. Ideally this is followed by an introduction to the procurement department, during which the CPO or procurement director explains the functioning of the department. The rest of the organization is informed about the audit and the

auditors will set to work. First of all, they will gather factual information concerning the procurement department, with the aid of a structured checklist; Figure 15.5 shows several subjects on which data could be gathered. Assessing the level of professionalism of the procurement department along the six stages of the procurement development model (refer to Chapter 3) can also be part of this. A selection is then made of the key personnel to be interviewed; confidentiality towards the respondents must be guaranteed, a factor that frequently constitutes a reason for using external consultants in this kind of research. Figure 15.6 shows some questions which may serve as terms of reference for the investigation.

Based on the information gathered, the auditor(s) will prepare a report, the initial findings of which are first checked with the CPO or procurement director. This provides the opportunity to find out to what extent the results are recognized. Also at this stage some ideas about improvement measures can be exchanged. A meeting with top management will then follow, after which a final report is drawn up containing recommendations in the form of a policy plan or action programme. An important part of the final report is taken up by the documentation of performance indicators, which will serve in the future as a means to monitor progress.

Figure 15.5 Examples of key data relating to the procurement function

- *Commercial data:* sales turnover, cost of materials, ratio of materials cost to sales turnover, total spend
- *Personnel and organization:* total number of employees, number of procurement employees (classified according to educational level, functioning level, years of experience), ratio of procurement employees to total employees
- *Procurement's place in the organization:* organizational diagram
- *Reporting relationships:* top management, CFO, operations director, etc.
- *Job description:* primary tasks, authority and responsibilities of the procurement department
- *Procurement data:* number of SKUs¹ (production related, non-production related), number of suppliers, number of procurement requisitions, number of requests for quotations, number of orders, number of procurement invoices, Pareto analyses of procurement turnover according to article, order quantities, supplier, country of origin, etc. procurement department budget divided according to nature of costs
- *Relationships with other departments action plans:* in the areas of cost reduction, quality improvement, innovation, sustainability, etc.
- *Procurement processes and systems:* digital technologies that are being applied in procurement, availability of structured uniform procurement processes tools and templates, etc.

¹SKU: stock keeping unit.

Figure 15.6 Aspects to be considered in a procurement audit**Goals and objectives***Goal orientation*

- What are the procurement department's goals?
- What are the procurement department's responsibilities?
- To what extent are the procurement department's tasks stated in objective and verifiable terms?

Client orientation

- Does the procurement department communicate efficiently and effectively with its internal customers and stakeholders?
- Is there adequate reaction to the requirements and wants of the internal customers?
- Is the procurement department sufficiently aware of all relevant internal developments and external changes on the supplier market and supply chains?

Risk

- What are the major risks with regard to price behaviour of high-value items and availability of critical materials?
- Is procurement sufficiently aware of these risks and what measures have been taken in order to cope with them?
- In general, is continuity of supply and procurement operations sufficiently guaranteed?

Resources*Results and resources*

- To what extent does procurement meet its tasks and objectives?
- Is the procurement department adequately equipped in terms of people and systems to be able to meet expectations?
- What measures are taken in order to improve on results, on the one hand, and systems and human resources, on the other?

Flexibility

- Does procurement adequately react to changing materials requirements and internal customer needs?
- Is procurement sufficiently interested in pursuing new technology and solutions?
- What important changes have taken place in the service and organization of the procurement department?

Management

- Is teamwork within the procurement department sufficiently developed?
- Is the procurement department a well-respected partner for discussion of internal customer problems?
- What measures have been taken in order to keep the quality of human resources up to date?

Summary

Performance measurement in procurement cannot be considered in isolation. Rather, it is a crucial part of the procurement management process (refer to Chapter 3). Planning and control go hand-in-hand. If the procurement function lacks a clear vision, when procurement strategies and action plans are ill-developed and management reporting is absent, systematic performance measurement and evaluation will be difficult if not impossible. Without it, a procurement organization cannot be in control.

This chapter has shown that the degree of sophistication in measuring procurement performance differs between companies. A major factor influencing the parameters used to assess procurement is the view which management holds towards procurement. When procurement is considered primarily as an administrative and operational function, this will be reflected in measurement parameters that are used. If procurement is considered as a strategic business function, which is deeply rooted in the overall business strategy and processes, this will result in an extensive management reporting.

Procurement performance measurement is important since it will lead to a greater visibility and recognition by all other business functions. When applied effectively, it may lead to better communication with other disciplines, better decision-making, a higher motivation of staff involved and a greater transparency in the company's dealings with suppliers.

Objective performance measurement is, however, in many cases a difficult matter since, in practice, it is hampered by poor definitions and poor reporting. Moreover, information systems may not sufficiently support the data gathering and reporting structures required.

When measuring procurement performance, it is suggested to focus both on procurement effectiveness and efficiency. Procurement effectiveness relates to the extent to which previously agreed goals and objectives have been met by the procurement function, and is covered by four dimensions, i.e. procurement prices/costs, product quality/innovation, logistics/delivery, and sustainability. Procurement efficiency is related to the resources which are needed to realize predetermined targets and plans. It relates to the actual costs incurred against the budgeted costs for managing the procurement function and supplier relationships. Therefore, it encompasses the costs related to procurement organization, i.e. procurement staff, management, processes and guidelines, information systems and supplier relationships. For each of these dimensions a number of tools, monitoring reports, ratios and performance indicators can be selected to be included in a procurement scorecard, which enables a holistic view on how procurement actually performs. The procurement audit can be used to thoroughly analyze the procurement organization. Conducting such an audit in general meets with at least some resistance from the procurement organization, which is why it needs to be carefully prepared and introduced.

Assignments

- 15.1** How would you define procurement performance? What performance measures would you suggest using for a procurement department of a hospital?
- 15.2** How would you define procurement savings for direct and indirect procurement spend?
- 15.3** As a procurement manager, you want to measure procurement cost savings in terms of total cost of ownership rather than procurement price. How would you proceed?
- 15.4** What five indicators would you use to compare your company's procurement performance with that of your main competitors?
- 15.5** What are the main differences between supplier evaluation and supplier rating?
- 15.6** How would your balanced scorecard look for a procurement department of a car manufacturer?

Further reading

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Integrative Case IV.1

International Foods Industries: heading towards procurement synergy

BY ARJAN VAN WEELE

This case describes the problems relating to the achievement of procurement synergy in an internationally operating manufacturing company with various operating companies and sales organizations. Its content was based on various practical situations. International Foods Industries Ltd is a fictional company that produces and sells dry foodstuffs. Any similarities with existing companies are purely coincidental.

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Introduction

International Foods Industries (IFI) is an international company that operates in the European foods market. The company has operating companies in the Netherlands (5), Belgium (2) and Germany (1). Its headquarters are located at Arnhem, The Netherlands. The operating companies are responsible for marketing and sales, product development, production and logistics, and sales. They all operate in the area of foods: soups and sauces, dried pasta products, soft drinks and fruit juices, sports drinks, snacks and diet products. The sports drinks and diet products are growing especially rapidly. Two companies operate in the B2B market and produce pre-mixes and food ingredients for the food industry. These pre-mixes and food ingredients are also delivered to other parts of the IFI Group. These two manufacturing companies are accommodated within the industrial products division. The other operating companies together form the consumer products division. The operating companies vary considerably in size from 100 to 750 employees.

Respecting the decentralized management philosophy of the company, the corporate head office is of limited size. The following departments are housed at head office: human resources, management development, public relations, group finance and controlling, and the IT department. Needless to say, the board of management is based there too.

Refer to Appendix 1 for an overview of the group structure.

Decentralized entrepreneurship

Responsibility for results implies that the operating companies are responsible for their own commercial policy. Market and sales policies are drawn up for each operating company. The personnel policy is also determined locally within the general guidelines set by head office (regarding the remuneration, function profiles of personnel). As previously mentioned, each operating company has its own production operations. The companies primarily produce a wide range of foods for the consumer market. These are sold via the retail trade (supermarket chains and franchise organizations). A limited proportion of the turnover is obtained from exports (approximately 30 per cent).

Market situation

The retail trade has been characterized for many years by heavy competition. As a result of increasing concentration, retailers are in a position to exert tremendous pressure on the producers, which results in decreasing margins and falling returns. Producers therefore constantly have to seek ways of producing more efficiently and in a more client-oriented manner. In other words, the cost per unit of product must constantly be reduced.

Procurement policy

Procurement takes place within the operating company itself. At group level there is no co-ordination in this area. This is a pity, as many operating companies sometimes do business with the same (large) suppliers, buying the same products from them. Examples in the production area include packaging, labels, aroma and flavourings, and filling equipment. Examples in the indirect area include IT hardware and software, cleaning services, car leasing and maintenance articles. A recent comparative study showed that suppliers often charge different prices for the same products and services.

The group management has placed question marks alongside the current procurement structure. The generally held view is that there must be much more collaboration between the companies in the area of procurement in order to benefit from, as they put it, the 'potential procurement synergy within IFI'. This intention is meeting with some resistance among the management boards of the operating companies who feel that this is interference from head office

in internal matters. They feel that procurement is a matter for the companies themselves. They want to remain closely involved with the procurement initiatives. They are very much afraid that a decision will be made to set up a group-wide procurement department which will lay down the law to the operating companies. Two companies, which were recently taken over by IFI, had poor experiences with this approach in their previous life. The collaboration between group procurement staff and the local procurement departments resulted in many problems, which led to those departments being closed down, but without much discussion. These experiences are still fresh in the memories of the managers involved!

Procurement co-ordination under the motto: everything decentralized, unless...

The executive board recently met with the general managers of the operating companies. The meeting's input was formed by an overview of procurement spend per operating company, ordered by size and spend category. Examples were also given of highly varied prices being paid by the relevant operating companies to a single supplier for the same articles. A painful example was the flexible foils, for which – assuming they are of the same quality – there were price differences of 30 per cent from the same supplier! Some managers raised the point that some competitors of IFI had better terms with the same suppliers, despite ordering a lower volume. This drew the comment from one of the directors present that IFI's buyers evidently were not up to the job. Surely it is extremely important for IFI to move away from the image of being a 'soft touch' in procurement. The idea was put forward of bringing together the procurement managers of the operating companies involved to form a group procurement committee (GPC). There was a discussion about who would chair such a committee. Ideas varied from the procurement manager of the biggest operating company to a director from the group staff (the director of group finance's name was mentioned as they would have the greatest affinity with finance and costs).

Despite the close involvement of all those that were involved in the discussion, no final decision was made. All the directors felt that it was worth combining forces in procurement but were reluctant to relinquish their current autonomy. Most of the directors were themselves actively involved in closing the most important deals with suppliers; they knew the suppliers personally and were very attached to those contacts. If they relinquished their autonomy, they

ran the risk of being saddled with a supplier and a product that they did not know. They were also worried about the existence of a central procurement department at group level which would lay down the law to the operating companies. It was generally acknowledged within IFI that departments of this nature are not very effective. A final comment related to the quality of the procurement departments and buyers in most of the operating companies. Generally speaking, procurement departments had little status and authority within the operating companies. When it came to reducing the number of product variants and suppliers, this would undoubtedly come up against strong resistance from product developers and production departments.

The dilemma that those involved felt they were faced with was the question of how they could benefit from the potential buying power of IFI without that being achieved at the expense of the operational effectiveness and decisiveness within the operating companies.

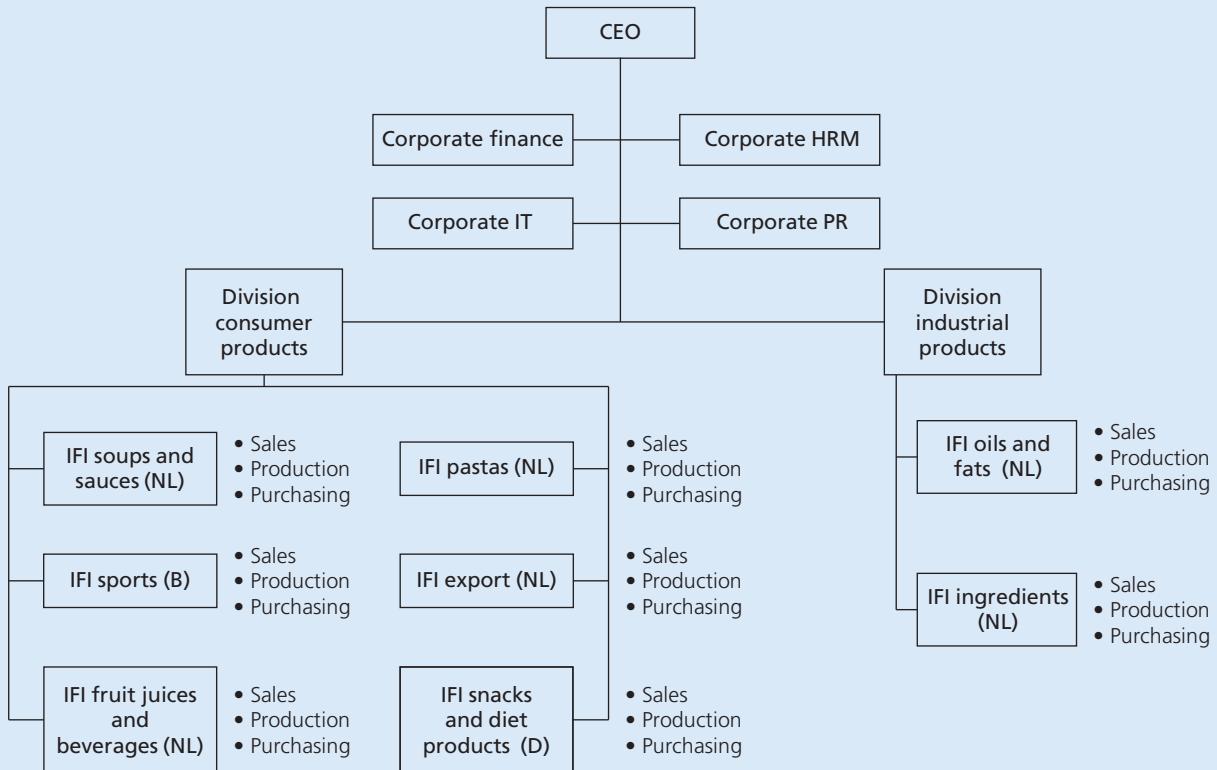
The management meeting did not arrive at a decision. Those present were advised to go away and think again. The pros and cons of central versus decentralized procurement would have to be compared at the next meeting. An indication of which spend categories best lent themselves to a more co-ordinated approach would also have to be given. Clarity would be needed regarding the question of whether the synergy initiatives should be limited to production goods or include non-production goods as well. Finally, it would be worth holding a brainstorming session on the possible alternatives that could be aimed for in order to achieve more synergy in procurement. The idea of creating a group procurement committee would have to be discussed in more detail.

Assignments

- 1** When looking for synergies, what criteria would you consider to decide whether to bundle volumes and leverage spend within different spend categories (i.e. products and services) across IFI?
- 2** Investigating IFI's list of spend categories in Appendix 2, what spend categories would you recommend for co-ordinated sourcing first? Identify the 6–8 most important ones and picture them in Kraljic's Procurement Product Portfolio (refer to Chapter 5).
- 3** How would you estimate the cost savings potential for each spend category? What criteria would you use? Identify whether you would think the cost savings potential to be high/medium/low. Next, put a figure on it.

APPENDIX 1

Figure 1 Organigram



APPENDIX 2

Name of spend category group	Total turnover (x €1000)	% of total (ex additional buying)	Number of suppliers
Paper and cardboard packagings	76,988	13.36%	47
– paper bags			
– corrugated cardboard			
– trays			
– cartons			
Other services	60,046	10.42%	101
Transport	57,844	10.04%	180
– courier services			
– tanker transport			
– general cargo			
Fruit concentrates	51,955	9.02%	61
Investments in production equipment	44,286	7.69%	119
Advertising, PR	43,096	7.48%	106

Name of spend category group	Total turnover (x €1000)	% of total (ex additional buying)	Number of suppliers
Dairy products	37,453	6.50%	31
Metal packagings	35,266	6.12%	20
– tin cans (aluminium and steel)			
– lids			
Sugar	23,010	3.99%	7
Technical maintenance articles	22,346	3.88%	116
– hardware articles			
– hand tools			
– fixtures and fittings			
– mounting materials			
– valves, flanges and regulating valves			
Plastic packagings and flexible foils	17,526	3.04%	26
– foils			
– lids			
– tubes			
– aerosols			
Temping agency services	13,845	2.40%	15
Raw materials	12,225	2.12%	55
Non-milk fats	11,624	2.02%	16
Gas	10,668	1.85%	12
Electricity	10,464	1.82%	10
Rental of external facilities (storage facilities, offices)	6,316	1.10%	16
Aromas and thickeners	6,017	1.04%	14
Other packaging materials	5,550	0.96%	22
Insurance	4,674	0.81%	10
– medical insurance			
– fire insurance			
– building insurance			
– travel insurance			
Other levies/taxes/membership	4,504	0.78%	15
Purification costs	3,227	0.56%	9
Cleaning agents	3,012	0.52%	9
Office expenses	2,395	0.42%	1
Fork-lift trucks and internal transport	2,010	0.35%	3
– palletizers			
– fork-lift trucks			
– roller tracks			
Travel, accommodation, representation expenses	1,516	0.26%	6
– hotel expenses			
– airline tickets			
– car hire			

Name of spend category group	Total turnover (x €1000)	% of total (ex additional buying)	Number of suppliers
Laboratory chemicals	1,287	0.22%	9
Car leasing	1,712	0.30%	4
Petrol/diesel/LPG	1,007	0.17%	7
Industrial gases	948	0.16%	1
Egg products	762	0.13%	1
Compounds	740	0.13%	1
Printing	725	0.13%	2
– note paper			
– leaflets and brochures (black & white and colour)			
Grain products	449	0.08%	1
Process chemicals	214	0.04%	1
Industrial clothing laundering	167	0.03%	1
Wooden pallets	160	0.03%	1
Colourings	110	0.02%	1
Other MRO goods	106	0.02%	1
Total	576,250	100.00	1058

Integrative Case IV.2

European Airlines: about procurement governance and stakeholder engagement

BY ARJAN VAN WEELE

This case study is written to serve as a vehicle for discussion. It is taken from real life examples. European Airlines is a fictitious company. Any resemblance with existing companies is purely coincidental.

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Introduction

John Parker, procurement transformation manager at European Airlines (hereafter, EA), parked his car in the car park at the entrance to International Management Consultants (IMC), London. He was seeking advice on a

delicate matter: six months ago, he was nominated as the procurement transformation manager by the executive board with two challenging assignments: (1) to save a considerable amount of money on the airline's massive procurement spend and (2) to implement an effective procurement organizational model which would harmonize the airline's decentralized procurement operations. Prior to his decision to accept the board's invitation, John presented a business case. This business case outlined the benefits that the company's procurement development programme would bring. It also outlined the budget and resources that he would need to create those benefits. An impressive part of the budget was destined for eight procurement professionals, four of whom were to be recruited from within the company. The remaining four were to be recruited from IMC. After a promising start, the programme at this moment in time is showing little progress. John and his staff have been confronted with a lot of covert resistance from the organization and top managers seem to pay only lip service to his activities. As the reported savings were lagging far behind schedule, John was worried and decided to see Nigel Jones, IMC's managing partner and John's professional counterpart, for support.

EA in heavy weather

EA is one of Europe's leading carriers, coming from a rich history. Founded in the UK in the 1920s, the organization today is the result of a large number of acquisitions and mergers. As a result, EA operates destinations all over the world. About 60 per cent of its destinations are operated individually; 40 per cent are operated in close co-operation with global alliance partners. The idea behind these alliance partnerships is to provide consumers and business travellers with end-to-end solutions for travel. The same goes for its cargo division which is able to deliver small and large packages including special transports (such as show jumping horses) to destinations all over the world.

Most of the growth was created during the 1980s and 1990s. In 2000, due to the emergence of budget airlines such as easyJet and Ryanair, EA and its competitors had to review their business model. Ticketing changed from the network of booking and travel offices to internet solutions where business and private travellers could help themselves. Next, EA had to reduce its operating costs dramatically. Early in 2000, EA reviewed its destinations based on a concise profitability analysis. As a result, 30 per cent of the destinations were dropped. Another effect of this exercise was that 15 per cent of its employees were laid off. This sent a shockwave throughout the organization. However, as it appeared in 2005, these measures were not sufficient. Other opportunities to reduce costs were investigated. Inspired by other companies, Carl Frank, EA's CEO, decided to have a look at its procurement expenditure. AT Kearney was requested to conduct a thorough spend analysis and present a business case on what savings potential would be present and how to capture this. AT Kearney discovered that the company's spend on external suppliers was about 58 per cent of its €5.2 billion revenue. However, this spend was fragmented throughout the organization. Part of the spend was managed by decentralized procurement departments (if present at all) which resided in the passengers' division, cargo division, the maintenance division, the catering division, the IT department, the facilities organization, the HR organization and EA's marketing and sales organization. No co-ordination existed between these procurement activities, as this was deemed unnecessary since the commonality of purchases and suppliers, due to the different activities of these divisions, was low. However, AT Kearney suggested setting up a hybrid procurement organizational structure, where most of the strategic and tactical procurement activities would be conducted centrally, and all operational procurement activities would be managed and actually conducted by the divisions and operational entities themselves. For this, obviously, EA needed to invest a considerable sum of money into a digital purchase-to-pay solution (EA-Buy). Based upon an analysis of the most

important sourcing categories (using the 20:80 rule), AT Kearney estimated the cost savings potential in procurement to be around 6 per cent, i.e. €180 million.

Transformation management

Confronted with a clear picture of where to go to in the future, and knowing the procurement organization's current baseline, Carl Frank thought about how to get from A to B. Leaving this to consultants would be, as far as he could see it, a bad idea, given EA's highly political organizational culture. He decided to go for a transformation manager who would come from within the organization, a seasoned professional, with a good reputation and a thorough knowledge of the corporation's strategies, activities and sensitivities. John Parker, until then the manager of EA's business development department, seemed fit for the job. In his mid-thirties, John thought that this offer was a great opportunity for his future career. The job would give him a lot of visibility in the organization, he would receive clear guidance and direct guidance from his CEO, and if he were able to secure the resourcing issue, he would be able to do the job. So, he accepted and immediately set to work. One of the first things he did was to engage young, talented and bright professionals. Four candidates came from his business development department. The other four professionals came from IMC. These were hired on a temporary basis against steep fees, which were justified by referring to the savings they would generate. These actions did not go unnoticed among the decentralized procurement professionals. Most of them reacted with some jealousy: they felt they had been overworked for a number of years and had asked on several occasions for additional resources and support. However, since budgets for staff activities were always tight, most requests to expand the procurement function were turned down. And now, this newcomer from business development was able to hire new staff at much higher salaries than the procurement people in general earned. Of course, the sensitivities were not openly shared. However, in face-to-face communications procurement staff exchanged their personal views on this.

Kickoff of operation Mercado

Having his structure in place and properly trained, John Parker presented the detailed business case to the board of management and to the divisional management teams. In order to secure sufficient support and backup, he voluntarily increased the cost savings target to €220 million to be delivered in the next 24 months. This generated compliments and even applause from some of the top managers. All of them agreed

with the plans and guaranteed their unconditional support. Charged with this mandate, John Parker and his staff started to contact their decentralized procurement colleagues to get more detailed information about procurement spend, contracts, supplier performance data, supplier contact data, etc. John Parker expected the active engagement of his decentralized procurement colleagues. However, most of them appeared to be very busy and referred him and his staff to the voluminous cabinets and records in their departments. John Parker and his staff soon discovered that most of the data they were looking for was outdated, hidden or even not available. Many contracts needed to be obtained by contacting the suppliers, as EA did not have a centralized contract management system or repository. The work that was necessary to gather all the information took much more time and effort than originally expected, with the result that John Parker and his staff after two months were already faced with some delays compared to their plan. His people simply could not get to the strategic and tactical part of their jobs, since they were preoccupied with so much administrative and analytical work.

After two months, Chris Bales, EA's chief financial officer, started to enquire about the results gained. He requested a monthly procurement cost savings report, where both cost avoidances and cost reductions were reported. Reporting was done by one of John Parker's staff. The report would be checked monthly on a sample basis by Chris Jones's assistant controllers in order to validate the quality and integrity of the data. This led to a lot of discussion about how to define and validate procurement cost savings, an issue that even today has not yet been resolved.

Although the majority of the cost savings were to be delivered in the second year, only a mere €5 million cost savings were reported after six months. For the coming three months, results would increase to €10 million of expected savings. But this would be a far cry from the €50 million that was originally planned for.

At that time John Parker's concerns turned into worries, which resulted in the decision to contact Nigel Jones from IMC.

Meeting IMC's Nigel Jones

'Nigel, I really needed to see you,' John said, pouring his coffee, seated at Nigel Jones's plush desk. 'I am afraid that I have been a little too optimistic in targeting and achieving my cost savings. I did deliberately increase AT Kearny's cost savings target. That is true. But from what I know now their target was already pretty steep. And I'm sure that I could reach their cost savings targets, if I only had the full support of the EA organization.' He continued, 'I cannot understand why my EA colleagues do not support me. There is so much to be gained. We can only win. One of my ideas is that I probably need to intensify my communication about what it is I want to achieve to both the management and the shop floor of our organization. On the other hand, I have been clear about this all the time and senior managers know what they can expect from me. However, the only thing they do is pay lip service to our operation Mercado. Our operation seems to have little priority. How can I change this? Nigel, do you have any ideas on this? What should my response be?' Having listened carefully to John, Nigel put down his glasses and pondered for a while. Then he replied: 'Your response would depend on the problem that we have at hand here. Let's look at what the problem is first. Then, we can decide on our solutions.'

Assignments

- 1 What would you consider to be the major problems in this case study?
- 2 Do you recognize part of these problems at your company? Which ones in particular?
- 3 What would you recommend John Parker to do? How can he make sure that he and his team are going to succeed? Present at least four ideas.

Integrative Case IV.3

Fred's Fresh Supermarket: selecting the best supplier

BY ARJAN VAN WEELE

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electronic or any other means without the express written permission of the author.

Fred's Fresh Supermarket is an independent supermarket store located in one of the low income neighbourhoods of Amsterdam. As the name indicates, it is owned by Fred Kuiper, who assumed ownership of the store in 2020 from his father, who had started the store in 1995. Fred, born

in Amsterdam, is a freethinker and a true entrepreneur who wants to serve his customers as well as he can. The low income neighbourhoods require him to constantly adapt his product offerings to customer needs. Amsterdam is characterized by a highly diverse population, leading to product offerings that are tailored to meet different cultural preferences. As a result, Fred decided to steer his own course. His business philosophy is to have opening hours that suit his customers' needs, starting at 7 o'clock in the morning until 9 o'clock in the evening. The store is operated by a staff of 25 part-time employees. Half of these employees are students who want to have some income to finance their studies and enjoy Amsterdam's nightlife.

Apart from food, based upon customer demand, Fred decided some years ago to also offer a selection of electric consumer household appliances, such as kettles, egg cookers, electric frying pans, etc. The higher margins on these products made up for their lower buying frequency.

Operating in the Dutch consumer retail market is not easy as competition is fierce. Economies of scale need to be realized to survive and to be able to offer competitive prices to consumers. How can individual entrepreneurs survive in such a competitive environment? The answer is to be found in the franchise formulas that individual entrepreneurs can link into, or the large buying groups that they can become a member of. Fred decided in 2020 to do the latter. He became a member of Big Buyers Co-operatives (BBC), a sourcing co-operative that negotiates large contracts with many food and other consumer goods manufacturers on behalf of its 1200 members. In this way, Fred is able to combine individual entrepreneurship with economies of scale in his procurement operations. He is a prominent member of some of BBC's sourcing groups that give advice to BBC's professional sourcing managers on what to buy, how to get products delivered, type of packaging, better handling of food products, how to prevent quality problems and delivery problems, etc. The input from these sourcing groups allows BBC sourcing managers to constantly tailor the manufacturers' product offerings to BBC's entrepreneurs' needs.

On behalf of its members, BBC's professional sourcing managers negotiate with brand manufacturers. Given the specific needs of BBC members operating in low income neighbourhoods, BBC and several manufacturers realized a private label 'First Choice' and a product line related to green (i.e. eco-) products under the brand name 'Green Choice'.

Annually, at the year-end, BBC sends out requests for quotations (RFQ) to their consumer brand manufacturers and manufacturers of private labels. In 2021 BBC started to use an e-Sourcing solution to facilitate and orchestrate its sourcing process. The e-sourcing solution was used

to communicate specifications and product volumes to suppliers, to prequalify suppliers to check whether they would be able to suit BBC's future needs, to send out requests for quotations electronically, and to organize the bidding process through an e-auction. In doing so, BBC's professional sourcing managers replaced their traditional face-to-face negotiations with an auction process, comparable to the flower auction in Aalsmeer.

Most manufacturers and suppliers were unhappy to engage in this type of electronic bidding process, as they valued the personal relationships they had with BBC's sourcing managers in the past. In those days, sourcing managers would be frequently invited to supplier events, such as golf tournaments, tennis events and exhibitions and fairs where new products would be presented to the business community. E-auctions clearly made transactions between BBC and its manufacturers less personal. Suppliers now felt that they could only stand out in their product offerings in terms of price. E-auctions were orchestrated in such a way that price was the prime criterion for supplier selection. As a result, the market position of well-established national manufacturers was threatened by the entrance of low-cost producers coming from Eastern Europe. As these suppliers had longer delivery lead-times, delivery performance with the local stores increasingly became a problem. Fred was confronted regularly with empty shelves in his store. He was satisfied with the negotiated product prices; however, he was increasingly disappointed about the quality of the products and the delivery performance of BBC's warehouse to which the contracted manufacturers and suppliers would deliver their products. When calling the warehouse manager to communicate his complaints, the manager explained that the respective products were not in his possession yet and that he had to wait for incoming goods from suppliers residing in foreign countries.

Fred thought about the situation and decided to investigate the consequences of continuing e-auctions for the relationship with BBC's manufacturers. Perhaps he should promote the idea to BBC to revert to face-to-face negotiations between BBC sourcing managers and the manufacturers and suppliers. However, he pondered, is there a way back? Can we stop the use of digital technology in the near future? Would it be feasible? For what kind of products and suppliers should e-auctions be continued and for what products and suppliers should it be discontinued? Could other aspects be included as criteria in e-auctions, rather than price only, to arrive at more balanced sourcing decisions? He decided to sort out the answer to these questions, involving some talented procurement and supply chain management students in the process.

Assignments

- 1** Explain the role of e-auctions in the procurement process model.
 - 2** What e-auctions do you come across in management and academic literature? When and where are they applied? Describe at least three types of e-auctions.
 - 3** What are the advantages and disadvantages of e-auctions for the buyer?
 - 4** What are the advantages and disadvantages of e-auctions for the supplier?
 - 5** BBC's sourcing manager of Hardware asked for preliminary bids from five suppliers for stainless steel water cookers and put all relevant supplier data into a spreadsheet (Attachment 1).
- a** What supplier would you select based on total cost?
- b** What measures would you take with your warehouse manager to make sure that Fred is not faced with empty shelves and quality problems with water cookers?
- 6** For what kinds of products can e-auctions be used by buyers? Describe the criteria that products should meet. When answering this question, use an established theoretical framework, such as the Kraljic matrix.

Attachment 1

	Supplier data				
	Supplier A	Supplier B	Supplier C	Supplier D	Supplier E
Volume Max (units)	100,000	100,000	100,000	100,000	100,000
Volume Min (units)	70,000	70,000	70,000	70,000	70,000
Price/unit	€11.50	€12.25	€10.95	€12.05	€11.65
Packaging	€0.24	€0.20	€0.29	€0.19	€0.18
Transport	€0.03	€0.02	€0.03	€0.04	€0.02
Delivery performance	0.95	0.98	0.89	0.78	0.96
(Cost per late delivery: €5000)					
Quality performance	0.98	0.92	0.97	0.89	0.94
(Cost per quality problem: €10,000)					
Expected deliveries per year					
Minimum: 100					
Maximum: 120					
Volume discount (%)					
Sales turnover < €800,000	2	4	5	1.5	2.5
Sales turnover > €800,000	4	6	7	5	4
Payment terms	1%/60 days	2%/30days	0.5%/3days	1.5%/6days	1%/60 days
(Bank interest: 6%/year)					

Glossary

acceptance test This is a technical test performed at either the supplier's site, the buyer's site or both, to check whether the equipment that is bought by the buyer meets their functional and technical requirements.

agency problem Conflict of interest between buyer and seller due to conflicting goals, information asymmetry, risk allocation and moral hazard.

agent opportunism Situation where agent will act primarily out of self-interest.

assembly to order (ATO) Only systems elements or subassemblies are in stock at the manufacturing centre and final assembly takes place based on a specific customer order. In other words, manufacture of components takes place based on forecasts and final assembly takes place based on customer orders. Examples are the manufacture of cars, computers and materials handling equipment.

B2B marketplace This is an online marketplace where, with the support of digital technology, buyers can search and select suppliers and make transactions with them.

back-to-back agreements Key subcontractor contracts reflect all conditions of the main contract between client and contractor.

bank guarantee Guarantee issued by the bank of the supplier that the supplier will meet its obligations.

basic design and engineering Activities needed to develop technical specification of the work.

battle of forms Disputes that may arise over whether supplier or buyer general terms and conditions will apply to a commercial transaction.

behaviour-oriented contracts Specify how the agent, i.e. contractor, should deliver the work.

bidders' long list Includes those suppliers that meet the buyer's prequalification criteria and that will be requested to submit a first proposal.

bidders' short list Includes those suppliers that meet the buyer's prequalification criteria and who will be requested to submit a detailed bid.

bottleneck products These items represent a relatively limited value in terms of money, but they are vulnerable with regard to their supply. They are hard to source and can only be obtained from one supplier.

bounded rationality Different contractual perspectives due to incomplete information and self-interest.

budget A budget serves as a vehicle for delegating activities and responsibilities to lower management levels in the organization.

budget authority Allows a manager to spend money and resources of the company for company purposes.

buying centre Relates to all those individuals and groups who participate in the procurement decision-making process, who share some common goals and the risks arising from the decisions (identical to decision-making unit).

buying processes Include determining the procurement needs, selecting the supplier, arriving at a proper price, specifying terms and conditions, issuing the contract or order, and following up to ensure proper delivery and payment.

Camp's formula Mathematical formula based upon inventory costs and ordering costs to decide on optimal economic order quantity (EOQ).

capital equipment Refer to *investment goods*.

cartel Price can be set by a market or price-leader, or arranged through some form of price arrangements.

category prioritization matrix Matrix used to classify category sourcing projects based upon two criteria: cost savings potential and ease of implementation.

category sourcing plan Identifies the sourcing strategy for a certain category.

centralized procurement structure In this situation at the corporate level, a central procurement department can be found where corporate procurement managers operate at the strategic and tactical level.

chief procurement officers (CPOs) Senior executive who is responsible for the management and co-ordination of the procurement function and its key processes and people throughout the organization.

closed innovation Closed innovation implies that companies try to develop new products and processes based on the idea that the company itself has the best possible knowledge and resources for innovation.

commercial risk This risk is related to uncertainty about the price to be paid and the costs that will be incurred when having outsourced activities to the supplier.

competitive bidding Situation where a buyer asks for bids from different suppliers, creating a level playing field (identical to tender).

competitive price The price paid for a product is based upon competitive tendering among a number of preselected suppliers. E-auctions or other formal tendering vehicles may be used.

components Components are manufactured goods which will not undergo additional physical changes, but which will be incorporated into a system with which there is a functional relationship by joining it with other components.

concern guarantee Holding company secures payment for an agreed sum in case the business unit fails to make payments.

conflict of interest Buyer wants to pay as little and seller wants to charge as much as possible.

conflict system Contractual relationship where parties pursue different objectives.

construction-only contract Contractor constructs the project in accordance with the design provided by the client.

contract for engineer–procure–construct (EPC) Contractor delivers project or work turnkey.

contract management The process that ensures all parties comply with a contract and fully meet their obligations.

contract management stages The three stages of contract management are: the pre-contractual stage, the contract negotiations stage and the post-contractual stage.

contract managers Responsible for selecting the right contract, contract negotiation and monitoring contract compliance by buyer and seller.

contract, time and materials Contract in which the buyer agrees to pay the supplier all materials costs and employee hours against predetermined hourly rates and margins for services rendered (identical to cost-reimbursable contract).

contracting Engaging in contractual relationship with one or more parties. After specification and supplier selection, it is the third stage of the sourcing process.

contractual risk The potential risk of facing losses when the counterparty is not able to fulfill the terms of the contract, or fails to meet contractual obligations.

co-operative system Parties act rationally in the name of a common objective.

core competence approach The core competence approach is based on the assumption that in order to create a sustainable competitive advantage, a company should concentrate its resources on a set of core competencies where it can achieve definable pre-eminence and provide a unique value for the customer. Therefore, it should outsource all other activities.

core competencies Those activities through which the company achieves sustainable competitive advantage.

corporate buyers Buyers operating at the corporate level with global sourcing responsibilities for key commodities. It is their job to negotiate for large volumes of products and components (in the case of raw materials) and large investment projects and services.

corporate procurement officer (CPO) Senior executive, who is responsible for the management and co-ordination of key purchasing and supply processes throughout the corporate organization.

corporate social responsibility How to contribute to a better world, a better environment and better labour conditions. The idea is to develop business solutions in such a way that requirements of the current world population are met without doing harm to the needs of future generations. Companies need to balance the interests of customers,

employees, the environment and its shareholders, i.e. serving the needs of 'people, planet, profit'.

cost avoidance A variance between the historical and the actual purchase price paid per unit. A cost avoidance is not considered to be sustainable.

cost reduction A sustainable reduction in costs resulting from a change in the (functional/technical) specification or switching suppliers.

customer of choice Such a customer receives preferential treatment and suppliers are prepared to invest deeply in the relationship, resulting in a better product and service, allowing the customer company to make a difference in its end-user and customer markets, irrespective of the business cycle.

customer order decoupling point (CODP) The point in the supply chain where a production order becomes customer specific. Downstream of this point activities are planned based upon customer order and further downstream activities are planned based on forecast.

decentralized procurement structure A major characteristic is that all business-unit managers are responsible for their own financial results. Hence, the management of the business unit is fully responsible for all its procurement activities.

decision-making unit (DMU) Relates to all those individuals and groups who participate in the procurement decision-making process, who share some common goals and the risks arising from the decisions (identical to buying centre).

derived demand Most companies sell to other companies. Few manufacturing companies deliver directly to the end-user. For this reason, developments in industrial markets are often influenced by changes which occur in the end-user markets.

design-build–finance–maintain (DBFM) contract Contractor completes work at own risk and gets paid long-term payments after delivery.

design-build–finance–maintain–operate (DBFM-plus) contract Contractor completes and operates work at own risk and gets paid based upon actual performance.

design and construct (D&C) Contractor designs and provides, in accordance with the client's requirements, plant and/or other works.

design contest The design contest is a procedure that is used to obtain a plan or a design based on competition between expert parties. The design is judged by a professional jury.

direct procurement Procurement of all materials and products that are used for manufacturing a company's end products.

DuPont analysis Financial diagnostic tool to calculate the company's return on investment based upon sales margin and capital turnover ratio. Can be used to assess the effect of procurement savings on the company's return on investment (ROI).

Dutch windmill Combination of buyer's purchasing portfolio and supplier's customer portfolio, leading to 16 different business-to-business relationships, each of which calls for a different sourcing strategy.

dyadic perspective Contracts are closed based upon interests of buyer and seller only.

early supplier involvement (ESI) Situation where the supplier is involved by the buyer at an early stage of the new product development process.

electronic auctions (e-auctions) Electronic auctions (e-auctions) are tools used by the buyer to invite suppliers to bid simultaneously based on a predetermined purchasing specification using web technology.

engineer and make to order (ETO) In this situation there is no stock at all. The purchase and order of materials takes place on the basis of the specific customer order and the entire project is carried out for this one specific customer. As a result this type of production structure results in long lead times. Examples are oil platforms and luxury yachts.

enterprise resource planning (ERP) system A company-wide information system for managing the company's operational and support processes, administrative processes, human resources, materials resources and financial resources.

e-procurement solutions Relate to all digital and/or web-enabled solutions aimed at supporting the procurement process and all electronic data exchange that is needed for efficient transactions with suppliers.

escalation clause Price is linked to a price adjustment formula (index), which is based on external factors such as material costs or changes in labour costs.

expediting Following up on a purchase order to make sure that the supplier is going to perform as it has confirmed through the purchase order confirmation. There are three types of expediting, i.e. routine status check, advanced status check and field expediting.

external structure External structure consists of a number of links (companies, institutions) that are connected via markets.

facilities management Relates to the management (planning, execution and control), and the realization of housing and accommodation, the services related to these (e.g. security, cleaning, maintenance, catering), and other means in order to enable the organization to realize its mission.

finished products These encompass all products which are purchased to be sold, after negligible added value, either together with other finished products or manufactured products (identical to trade items).

fixed price contract Contractor agrees to work based on a fixed sum.

forward auction An e-auction which is used by suppliers to enforce bidding among a number of prospective buyers based on a starting price that is increased during the auction.

framework agreement A framework agreement is an agreement between one or more contracting entities and one or more suppliers, the purpose of which is to establish the terms governing contracts to be awarded during a

given period, in particular with regard to price and, where appropriate, the quantities envisaged.

functional specification Describes the functionality which the product must have for the user.

general terms of purchase Standard legal and commercial conditions that will apply to every purchase order issued by the buyer.

global sourcing Proactively integrating and co-ordinating common items and materials, processes, designs, technologies and suppliers across worldwide procurement, engineering and operating locations.

hybrid structure A combination of the centralized and the decentralized structure. Hybrid procurement operating models are not fully centralized, nor fully decentralized, but something in between: coordinated, federal or centre-led.

indirect materials All purchased materials and services that do not become part of the company's value proposition. May be classified into MRO supplies, investment goods (also referred to as capital expenditure, or CAPEX) and services (identical to non-BOM materials or non-production materials).

indirect procurement Procurement of all materials, components and services that are used to support the company's infrastructure and back-office activities.

industrial branch The horizontal relationship of organizations that experience each other as effective competitors (for example, the leather and footwear industry and the electronics industry).

industrial buying behaviour Set of internal and external variables and model that explain how organizations make buying decisions.

integral outsourcing Integral outsourcing applies when the responsibility for the execution of the entire outsourced function (or set of outsourced activities) lies with the external provider. This includes not only the execution of the activities but also the management and co-ordination of these activities.

investment goods or capital equipment Products which are not consumed immediately, but whose acquisition value is depreciated during its economic life-cycle.

just-in-time management (JIT) All materials and products become available at the very moment when they are needed in the production process, not sooner and not later, but exactly on time and in exactly the right quantity.

kanban Form of JIT scheduling based upon fixed volume lot delivery. When a lot is used, the kanban (card) will be sent to the supplier as a signal to replenish that lot.

Kraljic's purchasing portfolio A matrix indicating four quadrants representing four basic sourcing strategies, based upon financial impact and supply risk represented by a specific sourcing category.

learning curve The learning curve was originally developed in the US aircraft industry. It was discovered that the cost price per aircraft decreased at a fixed percentage as experience, i.e. the cumulative production volume of a particular type of aircraft, doubled.

leverage products In general, these are the products that can be obtained from various suppliers at standard quality grades. They represent a relatively large share of the end product's cost price and are bought at large volumes.

liquidated damages Sum that will be paid in case the contractor fails to deliver works according to the client's specifications.

logistics management Logistics management includes the management of materials planning, the supply of raw materials and other purchased goods, internal transportation, storage and physical distribution. It may also include, in some companies, reverse logistics, i.e. recycling packaging materials and surplus materials.

lump sum contract Contract is based upon a fixed price (per period) for executing the project or a certain activity.

make and send to stock (MSS) Products are manufactured and distributed to various distribution points which are dispersed and located close to the customer. Manufacturing is based upon forecasts and on the expected stock turnover at the points of distribution.

make to order (MTO) Only raw materials and components are kept in stock. Every customer order is a specific project. Examples are the manufacture of cans and basic construction materials.

make to stock (central stock) (MTS) Finished products are kept in stock at the end of the production process and from there shipped directly to many geographically dispersed customers, as in the manufacture of many consumer electronics products (such as dishwashers and refrigerators).

materials planners Responsible for materials planning and ordering. Materials planners focus on calling off the materials required against the prearranged framework agreements. Furthermore, they monitor and control suppliers on their quality and delivery performance.

maverick buying When managers in the organization are buying outside existing corporate agreements with contracted suppliers and stick to their preferred suppliers.

milestone payments Payments are made based upon deliveries made for each project planning stage.

modified rebuy Relates to a situation when the organization wants to purchase a new product from a known supplier, or an existing product from a new supplier.

monopolistic competition This market structure is similar to many actual markets and is characterized by a high degree of product differentiation.

monopoly Characterized by the presence of only one supplier of the product in question.

moral hazard Risk that both contractual parties will primarily pursue their own interest.

multiple sourcing Situation in which a company within a certain category buys from more than one supplier.

negotiated procedure Here the contracting authority can negotiate face-to-face with market parties about the contents, execution and costs related to the contract.

network perspective Contracts are closed recognizing value network interdependencies.

new-task situation This applies when the organization decides to buy a completely new product, supplied by an unknown supplier.

non-core competencies Those activities that are conducted within the company that do not contribute to sustainable competitive advantage.

NPR buyers Buyers responsible for buying and non-product-related goods and services.

offshoring Offshoring relates to the commissioning of work, which was previously done in-house, to a provider in a low-cost country. In many cases, offshoring is concerned with outsourcing of services.

oligopoly An oligopoly is a market type characterized by a limited number of suppliers and a limited product differentiation.

open innovation The purpose of open innovation is to create close collaboration on R&D, new product design and development and market introduction with parties that share the company's business interests in such collaboration. It is based upon the idea that the world outside the company probably has the best knowledge and resources for innovation.

open procedure Open procedure implies that every market party within the EU should be able to subscribe to a governmental tender.

operational procurement function (order-to-pay) All activities aimed at realizing flawless delivery of purchased goods and services including payment of suppliers.

ordering Ordering refers to the placing of purchase orders at a supplier against previously arranged conditions or when orders are placed directly at the supplier, without questioning the supplier's conditions.

outcome-oriented contract Specification of desired outcomes of contractor work.

output Relates to the functionality of the service instead of the activity itself, or the inputs that are used to provide the service.

outsourcing Outsourcing means that the company divests itself of the resources to fulfil a particular activity to another company, to focus more effectively on its own competence. The difference with subcontracting is the divestment of assets, infrastructure, people and competencies.

outsourcing process The outsourcing process can be structured around essentially three distinct phases: a strategic phase (why, what, who?), a transition phase (how?) and an operation phase (how to manage?).

overspecification A situation in which technical requirements are imposed on suppliers which are not necessary for the functionality of the product.

partial outsourcing Partial outsourcing refers to the case in which only a part of an integrated function is outsourced. The management and co-ordination of the function and activities still lies with the client (the buyer).

partner A (supplier) partner is defined as a firm with whom your company has an on-going buyer-seller relationship, involving a commitment over an extended period, a mutual sharing of information and a sharing of risks and rewards resulting from the relationship.

payment terms Payment terms relate to what, how and when the buyer will pay the invoice for the products and services delivered by the supplier.

penalty clauses That part of a contract which stipulates what will happen if a supplier does not meet its obligations.

performance bond Written guarantee from a third-party guarantor.

performance guarantee The contractor guarantees the actual output or outcome of the work to be delivered.

performance risk This type of risk relates to the chance that the supplier is not capable of doing the job it was hired for.

procurement portfolio approach Identical to Kraljic portfolio.

primary activities Primary activities are those activities that are required to deliver the company's value proposition to its customers. They consist of inbound logistics, operations, outbound logistics, marketing and sales, and customer service activities.

principal Provides the assignment to the supplier or service provider. Principal is equivalent to customer or buyer.

process audit The process audit is a systematic investigation of the extent to which the (technical) processes are capable of meeting the established standards in a predictable way.

procurement The management of the company's external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company's primary and support activities is secured under the most favourable conditions.

procurement authority Allows a manager to legally bind their company to an external partner.

procurement context analysis The systematic gathering, classification and analysis of data considering all relevant factors that influence the procurement of goods and services for the purpose of meeting present and future company requirements.

procurement department The department of a company or public organization responsible for executing and managing procurement processes.

procurement development model This model identifies six stages of development over time, indicating how procurement may develop in terms of professionalism within a company. These six stages are: transaction

orientation, commercial orientation, co-ordinated procurement, internal integration, external integration and value chain integration.

procurement effectiveness The extent to which, by choosing a certain course of action, a previously established goal or standard is being met.

procurement efficiency Related to the resources which are required to realize the previously established goals and objectives and their related activities. Essentially, it refers to the relationship between planned and actual costs.

procurement engineer A procurement engineer is a specialist function in the liaison between the engineering department and the procurement department.

procurement function Covers activities aimed at determining the procurement specifications based upon 'fitness for use'; selecting the best possible suppliers and developing procedures and routines (e.g. setting up supplier selection criteria) to be able to do so; preparing and conducting negotiations with suppliers in order to establish an agreement and to write up the legal contract; placing the orders with the selected suppliers or developing efficient purchase order and handling routines; monitoring and control of the orders to secure supply (expediting); following up and evaluating (settling claims, keeping product and supplier files up-to-date, reviewing supplier rating and supplier ranking).

procurement management Relates to all activities necessary to manage the procurement function in such a way that all procurement activities are aligned with and contribute to the company's overall business strategies and interests.

procurement materials budget Reflects, often per product item, the volume which is expected to be purchased for the next planning period, usually a year, and the expected price level for that specific product.

procurement performance The extent to which the procurement function is able to realize its predetermined goals at the sacrifice of a minimum of the company's resources, i.e. costs.

procurement performance measurement Six dimensions are suggested on which measurement and evaluation of procurement activities can be based: (1) a price/cost dimension; (2) a product quality and innovation dimension; (3) a logistics/delivery and supply chain dimension; (4) a sustainability dimension; (5) a procurement organization dimension; and (6) a supplier relationships dimension.

procurement portfolio approach (identical to Kraljic portfolio) Portfolio consisting of four quadrants (i.e. leverage products, strategic products, routine products and bottleneck products) based upon two criteria: financial impact and supply risk. Serves to develop four differentiated sourcing strategies.

public procurement law Public procurement law prescribes in a formal way how to go about government contracts, i.e. how to deal with suppliers and how to award public contracts. Major constituents of public procurement law are four European public procurement directives, i.e. Directive

2014/24/EU on public procurement; the utilities Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sector; Directive 2014/23/EU for the award of concession contracts; and Directive 2004/18/EC on defence and security.

public procurement principles Four major principles underlie each of the procurement directives. These are non-discrimination, equality, transparency and proportionality.

public procurement procedures Public procurement procedures relate to the procedures that public authorities need to adhere to when making procurement decisions. Different procedures are: (1) open procedure, (2) restricted procedure, (3) competitive procedure with negotiation, (4) negotiated procedure with or without prior publication, (5) competitive dialogue, (6) innovation partnership, (7) design contest and (8) dynamic purchasing system.

public procurement scope The European directives apply to all governmental authorities, including the state, regional or local authorities and bodies governed by public law.

purchase order confirmation A document that is used by the supplier in which they agree to perform according to the buyer's purchase order.

purchase order requisition Description of internal customer requirements for goods and/or services needed to be obtained from suppliers, which will serve as the basis for the purchase order.

purchase (order) specification Relates to all specifications needed to select the right supplier including quality specifications, logistics specifications, maintenance specifications, legal and environmental requirements, and a target budget.

purchase-to-pay (P2P) solutions Systems used to automate parts of the procurement process, ranging from requisitioning, to ordering, supplier delivery and payment. May be integrated with the company's ERP system.

pure competition Characteristic of this market structure is that neither the supplier nor the buyer can influence the price of the product.

quality Quality refers to the total of features and characteristics of a product or service that have a bearing on its ability to satisfy a given need (American National Standards Institute). Quality is meeting (internal or external) customers' requirements that have been formally agreed between a customer and a supplier.

quality assurance Related to keeping up the methods and procedures of quality management, i.e. systematically checking that they are efficient, that they lead to the desired objective and that they are applied correctly.

quality costs Relate to three types of costs, i.e. prevention costs (the costs of preventing errors), assessment costs (the costs related to the timely recognition of errors), correction costs (the costs that result from correcting mistakes).

raw materials Materials which have undergone no transformation or a minimal transformation, and they serve as the basis materials for a production process.

reimbursable/time and materials contract Contractor agrees to work based upon compensation of all actual costs incurred plus profit margin.

request for information (RFI) Suppliers are invited to submit general information that may help them to qualify for a potential tender.

request for proposal (RFP) Suppliers are invited to submit a proposal which meets the requirements as laid down in the request for proposal. An RFP is used when the request requires specialized capability or expertise, or where the product or service being requested does not yet exist.

request for quotation (RFQ) Suppliers are invited to submit a detailed bid (or 'price quote') which meets the requirements as laid down in the request for quotation against the lowest possible price (identical to request for tender).

residential engineering Situation where engineers from the supplier are co-located on a more or less permanent basis at the buyer's organization, in order to work on design or manufacturing problems which appear during the successive stages of development. Residential engineering also relates to a situation where a large OEM has placed its own engineering specialists at the supplier's premises in order to resolve a variety of technical problems.

resource-based view of the firm Theory that business success is primarily achieved through deploying a company's unique resources.

restricted procedure This procedure acknowledges two distinct stages: the stage of selecting suppliers that are interested and the stage in which the preselected suppliers are invited for tender. It is also referred to as the procedure with preselection.

reverse auction An e-auction which is used by buyers to enforce competitive bidding among a limited number of prequalified suppliers based on a starting price that is lowered during the auction.

risk assessment matrix Risks are assessed based on two criteria: (1) the negative impact on the company's financial performance or operations and (2) the likelihood the risk factor would probably occur.

routine buy Relates to the acquisition of a known product from a known supplier (identical to straight rebuy).

routine products These products produce few technical or commercial problems from a procurement point of view. They usually have a small value per item and there are many alternative suppliers.

semi-manufactured products These products have already been processed once or more, and they will be processed further at a later stage.

service level agreement (SLA) A service level agreement describes the performance which needs to be delivered by the supplier. Key performance indicators (in terms of cost, service and quality levels) are agreed by both parties. Payment to suppliers is based upon specific rates plus a bonus or minus based upon actual performance versus targeted performance.

single sourcing A situation where a buyer is forced to buy from one supplier due to technical specifications.

sourcing Finding, selecting, contracting and managing the best possible source of supply for the whole company on a worldwide basis.

sourcing category A discrete category of goods or services grouped according to the function of those goods and services and mirroring the similar characteristics of their specific supply markets; examples include raw materials, chemicals, components, packaging, professional services, and so on.

sourcing strategy Identifies for a certain sourcing category how many suppliers to contract with, what type of relationship to pursue, contract duration, type of contract to negotiate for, and whether to source locally, regionally or globally.

straight rebuy Relates to the acquisition of a known product from a known supplier (identical to routine buy).

strategic products These are high-tech, high-volume products, which are often supplied at customer specification.

supplier assessment levels Supplier assessment may take place at five different levels of abstraction: price level, product level, process level (e.g. quality assurance system level), people level (e.g. management style, knowledge and expertise of supplier employees involved) and purpose of the company level (e.g. sustainability strategy, shared values, responsible leadership).

supplier assessment methods Includes supplier evaluation, supplier rating and supplier audits/visits.

supplier quality assurance (SQA) Supplier quality assurance is all activities conducted by a company to arrive at a zero defects quality performance in its relationship with suppliers.

supplier satisfaction survey Periodically, the buyer invites suppliers through a standardized survey to share their perception on the quality of the business relationship and come up with suggestions for improvement.

supplier segments Suppliers may be classified into different segments, depending on the value and risk which they represent to the company. Segments may include: (1) strategic partners, (2) performance partners, (3) preferred suppliers and (4) competitive suppliers.

supplier selection Supplier selection relates to all activities which are required to select the best possible supplier and includes determining the method of subcontracting, preliminary qualification of suppliers and drawing up the 'bidders' list', preparation of the request for quotation, analysis of the bids received and selection of the supplier.

supply chain A series of companies in which the consecutive stages of production of an economic product take place, from primary producer to final consumer.

supply chain management The management of all activities, information, knowledge and financial resources associated with the flow and transformation of goods and services from the raw materials suppliers, component suppliers and

other suppliers in such a way that the expectations of the end-users of the company are met or surpassed.

supply chain perspective Contracts are closed based upon recognizing interests of key supply chain partners.

supply management Relates to all activities necessary to manage supplier relationships in such a way that first-tier suppliers are aligned with the customer company's overall business strategies and interests.

support activities These are activities that are required to support the company's primary activities. These include procurement, technology development, human resources management and facilities management (i.e. those activities aimed at maintaining the firm's infrastructure).

tactical procurement function All activities aimed at defining procurement materials and/or service requirements, supplier selection, contract definition and negotiation.

technical risk This kind of risk is related to the extent to which the provider is able to provide the desired functionality and performance.

technical specification Describes the technical properties and characteristics of the product as well as the activities to be performed by the supplier.

tender Situation where a buyer asks for bids from different suppliers, creating one level playing field (identical to competitive bidding).

tendering Activities needed to select a contractor for the work based upon comparing competitive bids.

threshold values Threshold values for procurement purposes represent the purchasing volumes beyond which public institutions are obliged to follow European legislation when making their purchase decisions. There are different threshold values for work, supplies and services.

total cost of ownership (TCO) Relates to the total costs that the company will incur over the lifetime of the product that is purchased.

transaction cost approach The transaction cost approach is based on the idea of finding a governance structure to arrive at the lowest cost possible for each transaction and comparing whether to perform an activity internally or outsource the activity in the market.

turnkey outsourcing Turnkey outsourcing applies when the responsibility for the execution of the entire outsourced function (or set of outsourced activities) lies with the external provider. This includes not only the execution of the activities, but also the co-ordination of these activities.

unit rate or charter contract Contractor receives a fixed sum per unit of work completed.

value chain Composed of value activities and a margin which is achieved by these activities. Value activities can be

divided into primary activities and support activities. The margin represents the value that customers want to pay extra for the company's efforts compared with the costs that were required for these.

value chain management All stakeholders belonging to the same value chain are challenged to improve the (buying) company's value proposition to its final end-customers, i.e. consumers.

value chain perspective Contracts are closed based upon the client's key interests and requirements.

vendor-managed inventory This is a continuous replenishment program that uses the exchange of information between the retailer and the supplier to allow the supplier to manage and replenish product at the store or warehouse level. In this program, the retailer supplies the vendor with the information necessary to maintain just enough products to meet customer demand.

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