Customer Service in Supply Chain Management: A Case Study

Article *in* Journal of Enterprise Information Management · October 2014

DOI: 10.1108/JEIM-04-2013-0015

CITATIONS
17

READS
2,062

1 author:

Fatiha Outini Naoui
Excelia Business School
6 PUBLICATIONS **21** CITATIONS

SEE PROFILE

The current issue and full text archive of this journal is available at
www.emeraldinsight.com/1741-0398.htm

Customer service in supply chain management: a case study

Fatiha Naoui
Department of Economy Strategy Organisation, Groupe Sup de Co La Rochelle, La Rochelle, France

Received 15 April 2013
Revised 29 September 2013
31 December 2013
Accepted 9 January 2014

Abstract

Purpose – The purpose of this paper is to present a case study to assess the customer service within supply chain management (SCM). In particular, the paper emphasizes an interest in an integrated approach to considering customer service performance in an efficient way. Indeed, information systems as technical support play an essential role in the SCM of small- and medium-sized enterprises (SMEs). The reasons for pursuing such research can be explained by the fact that the customers are the first concern of any firm that seeks to be competitive. Indeed, the author seeks to answer the following question: Which are the main explaining factors of the customers' service performance within Alpha SCM?

Design/methodology/approach – A qualitative research methodology is used based on 11 semi-structured interviews with professionals and direct observation as part of a telecommunications network SME in France.

Findings – This empirical case study is to delineate the concept dimensions. These dimensions allow the drawing up of a framework of actions to improve SME customer service performance evaluations in the SCM.

Research limitations/implications – The paper is a single case study, not generalizable, but might be useful in general way. Another issue that the author can reflect on is the key performance indicators (KPIs). The KPIs selected are rather subjective and not generic relating to supply chain as "process". The answers correspond to the managers' perception and the international dimension is not taken into account in this work.

Practical implications – The results contribute to the existing body of knowledge regarding services for improving the relationship with the customers; improve operational reporting; improve invoice control and indicator follow-ups with the project manager; and improve cost management.

Social implications – The human factor is an important and current issue and is discussed in context of the case study.

Originality/value – The paper adds to the understanding by showing that the human motivation and intellectual capital management are critical success factors in the Alpha SCM case study. It offers a new perspective that customers are among the major actors in the telecommunications market, along with the corporate customers and administration involved in implementation or service quality follow-up and telecommunications use. The group offers a wide range of skills to help the customers to make the most of technology.

Keywords Performance, Evaluation, Supply chain management, Customer service
Paper type Case study

1. Introduction

Changes in global customer behaviour require an agile answer from a company and its partners in a supply chain. Supply chain management (SCM) can be defined as a process for integrating a chain of entities (such as suppliers, manufacturers, warehouses and retailers) in a manner which ensures the production and delivery of goods in the right quantities at the right time, while minimizing costs and satisfying customers (Christopher, 1992). Nowadays, companies' campaigns in various markets are concerned with services which integrate fast delivery and friendly contact with customers. The cost strategies have become options which are easily imitable by competitors, so companies do not represent differentiation for the customer (Kyj, 1987; Quinn, 1994; Tixier *et al.*, 1998). A number of observers have emphasized that products offer few competitive advantages, but customer service provides a major differentiation (e.g. Livingstone, 1992). The importance attached to customer service is justified by strong competitive pressures, which are translated, in particular, into increased customer requirements regarding a company's capacity to coordinate operations and information flows, from its raw materials acquisition to its after-guarantee policy, after-sales service and maintenance (Loomba, 1996). Customer service takes its support from logistics. For managers, customer service now appears to be one of the main sources of competitive advantage which companies can offer; which, moreover, explains its place in the new concerns of the logistics function (Brockmann, 1999). Indeed, if the service quality offered to customers has been associated long enough to the marketing function concerned, it constitutes, more and more, one of the logistics major step (Tchokogué *et al.*, 1999). In this way, the role that organizational size plays in determining adoption rates of total quality management is important (Haar and Spell, 2008). Recognized as a real process, SCM is a major challenge for industrial and commercial enterprises that places customer requirements and satisfaction, in an ever shorter time, at the heart of their managerial concerns (Croom *et al.*, 2000). SCM has radically transformed the economic and business strategy models (Tarondeau *et al.*, 2008). Therefore, to capture this complexity, enterprises create new logistics systems to improve service levels, reduce costs and ensure an ever greater reactivity that meets the new requirements (Dornier, 2006). The adoption of an SCM approach that focuses on logistics appears to be a performance tool, since the ambition is to meet the following objectives: improving service levels, cost reduction and value creation while managing customer relationships, both upstream and downstream (Carbone *et al.*, 2006). This is an integrated approach, without which activities can be considered as being essentially marketing concerns (Tchokogué *et al.*, 2001). However, it seems interesting to enlarge this vision of SCM by taking into account all the supply chain actors. In view of this, the objective of the present study is to offer the main factors explaining customer service performance within SCM. The research question guiding the study is as follows:

RQ1. What are the main factors explaining customer service performance within Alpha's SCM?

This paper is arranged as follows. Following this introduction, the paper reviews the literature on SCM, customer service and performance notions. The next section describes the methodology adopted, and then reports the results. Finally, the paper concludes with a discussion of recommendations that could enhance SCM. Future trends and challenges in SCM are outlined and some conclusions drawn.

2. Theoretical background

This section is organized as follows. First, clarification is given of the supply chain's strategic and integrating role. Second, the World Class Logistics (WCL) model is presented. The third section discusses the information technologies supporting logistics and SCM, while the fourth is a customer service review.

2.1 SCM: its strategic and integrating role

Several academic researchers highlight the essential role of logistics, considered as the origin of the SCM process (Colin, 2002). Many SCM definitions are presented in the

Journal of Enterprise Information Management
Vol. 27 No. 6, 2014
pp. 786-801

1741-0398
DOI 10.1108/JEIM-04-2013-0015

literature. Corrêa points out that SCM involves a lot more than just cost management, since it affects other aspects such as performance, the speed and reliability of deliveries, the quality of the products, and, finally, the flexibility with which the network can adapt. SCM covers all the activities related to the flow and transformation of goods from the raw material stage (extraction) to the end user, as well as the respective flows of information. SCM involves integration of these activities through the establishment of improved relationships in the supply chain for the purpose of gaining a sustainable competitive advantage. Integrating all the activities in the supply chain allows companies to gain sustainable competitive advantages; advantages which can be produced and maintained (Handfield and Nichols, 2002). Furthermore, SCM is the management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at lowest cost for the entire supply chain (Christopher, 2011). There are four main uses of the term "SCM": the internal supply chain that integrates business functions involved in the flow of materials and information from inbound to outbound ends of the business; the management of dyadic or two-party relationships with immediate suppliers; the management of a chain of business including a supplier, the supplier's supplier, a customer and a customer's to customer; and the management of a network of interconnected business involved in the ultimate provision of product and service packages required by end customers (Harland, 1996). Mentzer (2004) defines SCM as a set of three or more companies directly linked by one or more of the upstream and downstream flows of products, services, finance and information from a source to a customer. Mentzer *et al.* (2001) propose SCM as systemic, strategic coordination and the tactical management of actions within the departments of a particular organization, as well as business carried out inside the chain for provisioning the organization as a whole. The network of organizations is required, through upstream and downstream bonds and in various processes and activities, to produce value in the products and services held in the hands of the ultimate customer (Christopher, 1992). Added to this approach are three competitive advantage factors: reliability, responsiveness and relationship (Christopher, 1994). The reliability of an organization is dependent on the need to guarantee a delivery which is complete and on time; responsiveness is an evaluation of the capacity to answer within the shortest possible time, with the greatest flexibility; finally, the relationship factor stresses the importance of partnerships in the implementation of continuous improvement in matters of quality, innovation, reduction of costs and adjustment of the delivery logs. In the same way, every sensitive company must engineer a major reorientation of its management system (Christopher, 1997). Thus, a company must modify its organizational diagram according to three points:

(1) to change from a system in terms of functions to one of logic with respect to process. This means that the company must regard the horizontal character of the structure as a unit of inter-functional processes based on the requirements of the customer;

(2) to change from a profit concept to a performance concept. This point underlines the obligation to provide financial as well as non-financial indicators; and

(3) to change from product management to customer management.

The satisfaction of the customers must be the ultimate objective of any commercial organization, and it is imperative that the structures of management and the systems of measurement are also reflected in this way (Christopher, 1997).

2.2 The WCL model

In 1995, researchers in the Global Logistics Research Team at Michigan State University, developed an approach for logistics managers that facilitates a more corporate or universal perspective in relation to a customer-performance-oriented logistics process. The model provides a nomenclature for competency in four key dimensions. Positioning competency involves the creation and implementation of strategies and process approaches to achieving supply chain objectives. Effective supply chain managers focus directly on building these competencies and allocating resources to implement approved strategies. Integration competency relates to establishing and maintaining all of the necessary mechanisms (rules, processes and infrastructure) across the supply chain to implement the desired strategies. Agility competency entails establishing an organization's ability to identify and satisfy customer requirements through accommodation and flexibility. Finally, measurement competency involves focusing management's attention on establishing quantitative measures of actual and desired achievement, using functional assessment, benchmarking and quantification of results.

2.3 Information technologies supporting logistics and SCM

Fabbe-Costes (2000) focuses on three areas. First, the decision-making axis stresses the integrative aspect (operational, tactical and strategic). Second, the extended enterprise axis defines the external transversality impact. Finally, the operational axis emphasizes the internal transversality role (Table I).

The essential element in this presentation is the issue of information system interoperability and the role of information technologies in SCM performance evaluation. Moreover, it appears that the SCM approach reinforces the relationship between competitors and partners (Joffre and Koenig, 1992), as well as the different modes of cooperation (strategic outsourcing, business networking, joint ventures and strategic alliances) between stakeholders (Miles and Snow, 1998; Fulconis, 2000). Unquestionably, this cooperation is facilitated by efficient and compatible information systems. Nevertheless, the benefits of some areas of enterprise resource planning (ERP), for example, are still to be understood by stakeholders (Shahneel *et al.*, 2008). Indeed, the factors that influence ERP benefit realization fail to differentiate between some of the aspects that may have an effect, such as the size and type of the company, the ERP system implemented, and the organizational context (Esteves, 2009).

Step	Origins	Tools
Decisional axis	Consistency and speed of decision-making flow Performance measurement	Decision support technology APS (advanced planning system) SCM tools, data warehousing databases
Extended enterprise axis	Cooperation, communication, partnership and commitment monitoring	Interface technology, electronic data interchange, the internet, intra and extranet, efficient consumer response, call centres, managed inventory
Operational axis	Customer and shareholder satisfaction Monitoring, evaluation and integration of the major processes	Monitoring technology, enterprise resource planning, manufacturing and logistics execution systems

Table I.
SCM: steps and information technologies

2.4 Customer service review

The customer service definition influences the company performance mode of evaluation (Tucker, 1983). In most companies, customer service is defined in three different ways (Samii, 2004): as an activity; as a performance measurement; and as a philosophy and strategic element of the company. The definition of customer service varies from one company to another. Customer service is a process which takes place between the purchaser, the salesperson and the intermediaries. This process leads to added value for the service produced or exchanged. This added value can arise in the short run as a simple transaction or in the long term as a partnership contract. Thus, customer service is the process by which significant advantages are reached in a value chain in an effective way (Samii, 2004). The implementation of marketing concepts involves being able to keep customers by increasing their level of satisfaction. This makes it possible for a company to invest in the long term in the acquisition of new customers. In this respect, customer service is the capacity of a company to answer a customer's order starting from the stock available. If the order is not fulfilled, a rupture results (Baglin *et al.*, 2001). It is the supply chain which takes part in the total product definition. The customer service continuum relates to a process made up of three activity levels: pre-transaction, transaction and post-transaction elements (Tucker, 1983).

Pre-transaction elements concern the means by which a company effectively offers a service to its customers. It is about the structural design and piloting systems which ensure progression in relation to customer service operations. The customer will never be aware of the following elements, but inadequate care taken with any one of them can have significant consequences for the other two levels of transaction. The customer service policy statement: this is a written engagement of the customer service policy based on an analysis of needs and a definition of standards; it determines the customer service performance measurement in accordance with frequency, so that this written engagement can become operational. Communication with the customers: a written statement of engagement reduces the probability that customers will expect unrealistic performance; however, it also provides them with the means of communicating with the company if the levels of performance specified are not reached. The organizational structure: although there is no typical organizational structure for each customer service policy statement, the selected structure must facilitate communication and cooperation between the functions involved in the written customer service engagement. Moreover, the company should provide its customers with the individual names and telephone numbers of services designed specifically to satisfy their information needs. The people who manage the customer service components must be invested with responsibility and authority (empowerment), and financially compensated in a manner in which they are actively encouraged to manage the interfaces between the various functions of the company (reward system). Flexibility and services: system flexibility is necessary for answering non-anticipated events such as strikes, snowstorms or shortage of supply. Training and meetings will make it possible for a company to improve its integrated management of customer service. These elements as a whole constitute an essential component of the logistics strategy.

The transaction elements are those which link the exchanges between the customer and the organization. It is on this level that the customer starts to evaluate the company's service performance. Normally, these elements are directly associated with the traditional customer service concept. Out-of-stock level: this is a direct measurement of product availability. In the case of a shortage of stock, the satisfaction of the customer can be safeguarded either by offering a substitute product higher in conformity at a very attractive price, or by dispatching the product with the delay compensated for by an advantage. The role of strategic stock in the supply chain: strategic stock is the stock that must be maintained in order to satisfy any request higher than the quantity scheduled for a given period. This varies frequently in many situations because forecasts are rarely right. The inventory control system must face hazards of several kinds (Baglin *et al.*, 2001). Service function: this aims to ensure immediate delivery to the customer. This function is as present in retail stores as it is in the factories that deliver standard articles to a distribution network. When the delivery period is shorter than the product production or procurement lead time, it is necessary to anticipate the customer's order. Information regarding the order: this is a question of communicating to the customer, in a fast and precise way, the stock levels, a progress report of the order, the dispatch and delivery dates, and the follow-up of orders. The management of a back order and a total order cycle time constitutes an essential performance measure. Order cycle is the total time necessary between the order initialization and the complete delivery to the customer. The components of the order cycle include order reception, implementation, handling, packing, sending and information flow. The customer being mainly concerned with the total order cycle time, it is essential to have data processing follow-up, making it possible to locate any variation in the components defined. Expedition: although the costs of fast (sending) shipping are higher, it is particularly significant to identify the customers who will profit from this specific service; it is a logistics management role to define a coherent policy to encourage customers who contribute to rapid expansion. Systems precision: the precision of the product quantities and categories is as significant as invoicing precision. Errors can be very expensive, in terms of litigation or the quality of customer relations. Any gaps must be the subject of a report. Product substitution: substitution can improve customer service. It takes place when a product must be replaced by another in order to bring an equivalent or higher level of satisfaction to the customer. To develop a policy of coherent substitution, the company must maintain good relations with the customers to inform them and gain their consent regarding the substitute. The company should keep a trace of the market products involved in the substitution in order to manage performance and try to improve it. The key element of this policy remains good communication with the customer.

Post-transaction elements relate to the company's capacity to support customers once they have bought a product. Installation, guarantee and repair: these elements can make up a key factor of a purchase; they should be evaluated with the same care as the elements of customer service during a transaction. It is necessary to provide assistance in the following: the installation of a product or, at the very least, to check its correct operation before the consumer uses it; the availability of repairers and replacement parts; documentation and handbooks ensuring the repairers' performance; and an administrative office which manages the guarantees. Complaints and returns: policies and procedures should thus specify how to manage possible requests, complaints and returns. The company should keep the information relating to these aspects, as it can help develop products and their logistics. Replacement of a product: in certain circumstances, a product can be replaced temporarily while a customer waits for an order delivery; a replacement product can also be provided during repair as an element of customer service. These elements belong to the customer service support after the sale of a product.

3. Method

The method is approached through five points. The first point presents the Alpha Company, which is engineering and telecommunications network small- and medium-sized

enterprise (SME). The second point describes the qualitative research methodology used. The third point discusses the respondents questioned. The fourth presents the choice of interview technique and data collection method. The final point presents the criteria for validity.

3.1 Alpha case study presentation

Alpha was created in 1999 and selected by the Regional Council (an organization that creates the conditions for harmonious growth in the whole territory of France) to perform measurement campaigns regarding accessibility rates and the coverage of mobile operators. Alpha thus carried out a number of national and international projects thanks to its expertise in the radio and transmission field. According to one interview extract: "We provide the service to the operators and the manufacturers. This service is radio engineering and transmission. We also perform network quality measurements for the local communities. We have two types of services: technical services and set fixed price" (Chief executive officer). This company has a role in measuring service quality networks, technical installations, auditing, control, testing, validation, and the receipt and assumption of network evolution responsibility. Alpha's expertise lies in its set price services. These set price services are organized according to project mode, in a "made-to-measure" approach. Alpha defines, with its customers, the rules of conduct for the limits of responsibility, information exchange flows, contacts, documentation, etc. All these points are formalized in a specific contractual document (the Quality Assurance Plan). Alpha deals with project realization and engages with the result. Two complementary approaches are used: technical and manual measurements. The technical measurements make it possible to characterize the network performance cover. The manual measurements assess service quality from beginning to end. The following table presents the different Alpha customers: operators, equipment suppliers, administration and prime contractors (Table II).

3.2 Why the case study approach?

For our research, the case study approach was adopted to consider an empirical investigation, as it is a well-recognized methodology for exploring areas where the theory is still developing (Yin, 2003). According to Ellram (1996) and Yin (2003), case study research has proved to be a suitable method of exploring a phenomenon and gaining an in-depth insight into "how" or "why" type questions. Considering the main research question of this contribution, "What are the main factors explaining the customer service performance within Alpha's SCM?", this methodology is appropriate for the current problem. Case studies focus on holistic situations in real life settings and are, therefore, appropriate for surveying particular industries or types of operations (Ellram, 1996), as in the present field of the telecommunications industry.

Operators	*Equipment suppliers*
Bouygues Telecom	Siemens
Orange	Nokia
Neuf Cegetel	Alcatel
SFR	
Administration	*Prime contractors*
RATP	Sofratev
Regional Council	INEO
	Graniou

Table II.
Alpha's principal customers

Furthermore, Grant *et al.* (2005) state that there is a need for qualitative research in logistics and SCM in order to investigate complex logistics contexts, and that social and human involvement in logistics activities has to be considered with more emphasis. In this context, interviews can be a reliable tool for conducting research in a heterogeneous target group (Wessel, 1996). Walsham (1995) sees that theory used in interpretive studies can be less rigid than in positivist studies, the theoretical literature primarily serving to act as a source of inspiration and to assist in the understanding of complex social situations. Walsham (1995) argues: "The motivation for the use of theory in the earlier stages of interpretive case studies is to create an initial theoretical framework which takes account of previous knowledge, and which creates a sensible theoretical basis to inform the topics and approach of the early empirical work, p. 105". Walsham elevates the importance of theory in the research process and relegates the importance of the link between philosophical stance and theory use. In order to discover the main factors explaining the customer service performance within Alpha's SCM and to propose "how" Alpha evaluates its performance, we undertook a qualitative case study based on 11 semi-structured interviews.

3.3 Choice of interviewees

The staff members interviewed have been confronted with many customers (corporate customers) during their professional experience. Those who are no longer in contact with customers have a thorough knowledge of them and are interested in the SCM steps. Finally, Alpha's small size and structure facilitated us in our access to the various interviewees (Table III).

3.4 Choice of interview and data collection techniques

We chose to conduct semi-directed interviews. They were held starting with a flexible interview guide which was defined as a preliminary stage. Several themes were approached. The use of a tape recorder was necessary to allow transcription of the interviews. The interlocutors were not reticent regarding the use of a tape recorder. We also took notes and transcribed them within 48 hours following the interview. The interviews lasted for one-and-a-half to two hours. All the interviews started with a general question. We let our respondents approach the questions freely, while endeavouring to allow them to go further in relation to potentially interesting points (Demers, 2003). The application of the interview guide was undoubtedly the most delicate phase of the qualitative analysis because it was a question of discovering the antecedent variables of customer service performance within the Alpha supply chain approach. Finally, the interview guide was composed of SCM questions and customer service and performance evaluation questions. We also collected various documents throughout

Interviewee's post	Number of interviewees
Chief Executive Officer	1
Project Head	2
Consulting Engineer	1
Network Engineer	1
Salesperson/HRM	3
Telecom. Engineer	2
Computer Engineer	1

Table III.
Sampling and data collection

the study allowing us to increase our range of analysis. They were mainly newsletters, web site information and informal interviews. This step was inspired by Miles and Huberman's (1994) typological analysis. To condense our qualitative data, we carried out a coding of the interviews. The interview analysis was carried out starting from a categorical analysis of a set of themes on the sense units presented in the interview guide. Categorical analysis is a powerful device for data condensation, whose fundamental principle is the regrouping of similar objects under a common title or class (Bardin, 1993).

3.5 Criteria for validity

Internal validity requires existing theoretical concepts to define the sampling (theoretical sampling) and, subsequently, to make proposals to test the theory. External validity, in turn, implies that the research findings are generalizable to a theoretical point of view. Thus, if the use of theoretical concepts helps to ensure the internal and external validity of qualitative research, it therefore seems sensible to think that these two types of validity are, ultimately, linked. In this case, the tactics for ensuring internal and external validity converge and allow mutual reinforcement between the two types of validity. This assumption is similar to the principle of "theoretical validity" highlighted by Maxwell (1992). According to Maxwell, theoretical validity applies when the researcher moves from a descriptive and interpretative approach to an explanatory one, the latter entering a "higher" level. Indeed, research findings (from dense descriptions and relevant and reliable interpretations) are enriched by explanations from theoretical concepts not directly related to the study. This concept of theoretical validity overcomes the distinction between internal and external validity. It establishes a reconceptualization of external validity: it is definitely a move away from the notion of statistical generalization in favour of analytical generalization.

4. Results

In this part, we describe the findings regarding Alpha's SCM. The findings arise from the respondents' comments, as mentioned below.

4.1 SCM as a transverse services process

In answer to the first interview question: "What are we saying when we talk about Alpha's supply chain management?" SCM is perceived through transverse service processes where information and financial and physical flows of products form the bridges between each process. In this way, the process is defined as a series of tasks and activities connected with each other, continuous and managed so that they contribute step by step to the achievement of an objective and obtaining a concrete result which can be proved. Interview extract: "The supply chain which concerns us is more that of services. All other logistics, equipment measurements, analysis and materials treatment are the needs of this service" (CEO) (Figure 1).

Interview extract: "SCM is a process of service supply. This process is well formalized, a process which makes it possible to carry out services in man-days that one runs out month by month, they are the intellectual services of the days sold to our customers, it is a project-customer process" (Network Engineer).

4.2 SCM as a relation between organization and external customers

SCM is perceived through relations which are established between the organization and the customer. There is a wide relation between the upstream (intellectual engineering services) and the downstream (customer). Interview extract: "SCM is a process starting from the customer requirements. Turnover is based on the man-days sold to our customers. The services which we are able to sell from one month to another" (HRM Network). This extract appears to stress the typologies and diversity of the SCM concept. In this case study, SCM acts as a particular service, behaving neither as physical nor financial flows, but the service provided is an intellectual one.

4.3 Customer service performance findings

The analysis of the answers to the question: "For you, what is the performance of customer service?" highlights two complementary elements: the role of the internal and external actors is significant in any reflection engaged in the performance of customer service; and the quality of the collaboration, communication, information, order visibility, confidence and expertise supports the dynamics of the relations between the internal employees and the customers. Each of these points will be specified briefly below.

4.3.1 The role of Alpha's internal actors. For the respondents, the customer service performance involving the relations between actors will be reinforced gradually in this type of SCM step. Interview extract: "In reality, we don't have a Supply Chain Manager. In our SME structure all the members deal and bring the service quality. We take part in the service quality according to our specialities" (CEO).

4.3.2 The supply chain manager's transverse role. Relations are seen from both the internal and external point of view of the organization. The reinforcement of links is necessary where there are pressing demands on behalf of the customers for the total visibility of the orders and the modes of adjustment in the event of risks. Interview extract: "The Supply Chain Manager's role is to ensure the service provides quality from the beginning to the end. To take care that the service is carried out well in the practice code (good practice), in well-negotiated and contractual conditions. His role is also to bring future service solutions and to evaluate added value. The Supply Chain Manager intervenes before the contract signature. Namely, after the service proposal, the contract signature, the contract transaction and after the transaction" (CEO).

4.3.3 The project manager's role. The Project Manager has an important role in the collaboration and communication with customers. Collaboration is achieved via the telephone and mutual assistance. For example, the Project Manager visits the customer's site to take measurements, and to assess the relationship and availability of the human resources. This also means that SMEs cannot answer a customer's request by explaining that they cannot do it. Interview extract: "With the customers it depends on the contracts. In the fixed price contract, we send weekly files with the services carried out, the number of missed services [...]. We do it for the quality and for invoicing but they are not the same files. For invoicing, for each customer operation we did not do well, we will remake it for quality. The follow-up file is sent when the customers ask for it and we carry it out.

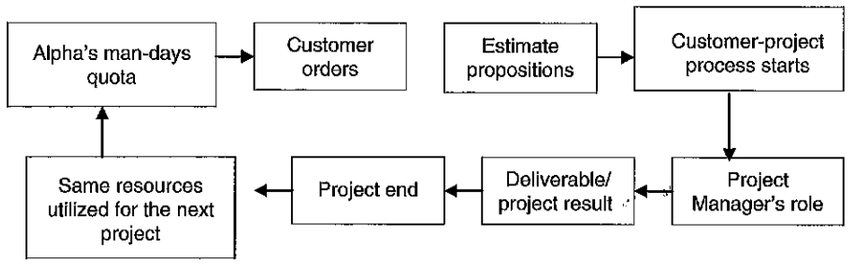

Figure 1.
The Alpha SCM process

But customers do not know our technicians' availability. For quality, the customer is informed by email or phone. The Project Manager explains to the customer why such a service was not carried out well and sends a copy to the Director. The Director gives an explanation to the customer" (CEO).

4.3.4 The role of competence, expertise and trust. In a partnership the bond between trust and competence is very strong. For Alpha, trust arises from the company's expertise and competences. Interview extract: "Collaboration is a partnership. We are in close collaboration with our customers. It is a certain trust, it is necessary to create trust. If there is no trust this does not occur very well" (CEO). Interview extract: "Yesterday, one customer calls us and asks us, please I need such a thing [...] whereas we do not have the order. We carried out the operation without an order because we let ourselves trust him. Then, the order was sent this morning. There are many things which arrive like that but it needs mutual confidence" (CEO). Interview extract: "Let us imagine that in a contract we specify that any operation cancelled on the same day as the operation is invoiced. The cost of the operation is 1,000 euros, for example. The customer invites us to cancel the operation. If we have not sent the technician yet, the invoicing is not taken into account. Then, the contract principle is not applied. It is an agreement and confidence relation" (CEO).

4.3.5 The role of information systems. To talk of customer service in an SCM step is by its nature to speak of the role of information systems insofar as the technical support plays an essential part. For certain respondents, success with customers depends on the use and coherence of the technical support. Two points were approached: concerning the tools on the one hand, and the communication with the internal actors and the customer on the other. Interview extract: "Obviously these tools are significant; the success of a project-customer process depends on the exchange of information" (Network Engineer). Interview extract: "There are information processing systems, data exchanges by e-mail, telephone, weekly or monthly physical meetings according to the progress report of the project" (Network Engineer). Interview extract: "In the SME internal system, we have simple follow-up files. Databases like Excel, Access. These databases are an internal creation and they allow us to follow up service quality. We do not have a dedicated information system. Our own system is shared by everyone in the SME" (Telecom Consultant).

4.3.6 Case study audit system. Two principal ideas are analysed in the Alpha audit system: corrective and preventive actions, and the Project Managers' and Directors' audit role. There are two possibilities in the Alpha audit system when customers have a problem. If the problem can be corrected, the actors proceed initially to corrective actions. If the problem cannot be corrected, they proceed to preventive actions to avoid the problem being reproduced in the future and they give an explanation to the customer. Interview extract: "The audit enables us to evaluate added service value, identify the errors and to provide recommendations to make future services corrections. The audits enable us to know customers' complaints, the number of times where a measurement was missed, the number of times a train was late, the customer's problem" (CEO). Interview extract: "The Project Managers take care of the service quality. We organize a weekly meeting to guarantee this quality and to define future strategies. The service quality is followed from the lower (technicians, service execution) to the higher level (Project Managers' budgets, Managing Director). We discuss together strategic decisions, recruitment, customers' complaints and each one brings proposals. Then, the solutions are formalized and enforced by the Project Manager who normally supplies the instrumental panel" (CEO).

5. Framework and implications

In this section, we present the customer service performance background and criteria evaluation (see Figure 2 and Table IV) to introduce a framework derived from the findings of the case study with which we can generalize and summarize our conclusions.

The Project Manager's role is a fundamental factor contributing to the customer-project success, from conceptualization to after-sales service, in the form of facility management through the following: communication, collaboration and audit. As Lamming *et al.* (2000) affirms, without good control of the flows of information within a company and between the company and the customers, customer service is generally relegated to a simple statistical level and to the reaction to particular problems. Furthermore, the engineers have the crucial role of sharing their competences and expertise with regard to customer-project success. The Alpha SCM acts as a particular service, behaving neither as physical nor financial flows, but providing intellectual services. The trust among partners allows a reduction in the type of contractual rigidity that is not in the interests of anybody in business. Indeed, the contract is there only for litigation cases. Furthermore, the trust is created by quality follow-ups. The customer must perceive that Alpha deals in quality assurance and has a preoccupation with quality. For example: how does the company check materials before use? How are

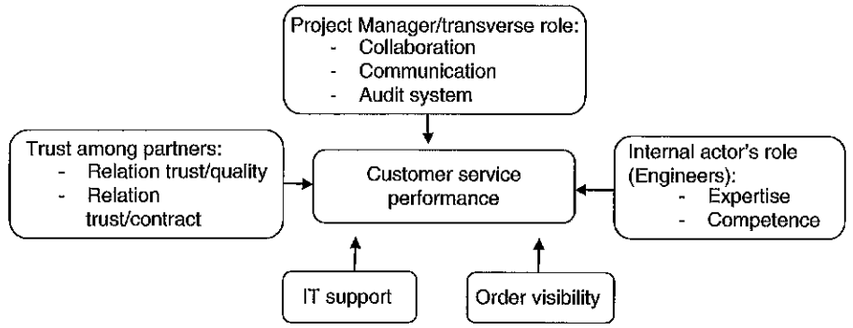

Figure 2.
The main factors explaining the customer service performance within Alpha's SCM

Service quality	Service success rate (period and budget, 100%); service failure rate; availability rate; service rate; realization number (contract number); turnover; service not executed rate; technicians trained in equipment verification
Customer satisfaction	Reactivity (time required to adapt to a change, e.g. rapid servicing invoicing and error); reply time; time delivery; duration and objectives (contractual on-time rate); customer satisfaction/survey
Confidence and relationship	Presence; evaluation meeting and proposals; business lunch; organization commitment respect; to improve customer service quality (commercial policy and Project Manager role)
Deliverable project adequacy cycle time	Service extension rate; physical logistics (machines); first customer-expressed demand; customer-negotiated demand; customer-project delivery (to compare the customer demand and realization dates); customer order numbers; project delivery date respect; ensure service on time and in good condition
Adequacy between production capacity and order book	Order numbers; occupation rate/inter-contract rate; sales prices

Table IV.
Alpha's customer service performance background and criteria evaluation

the technicians trained? The IT system makes a significant contribution to the success of Alpha. In this way, we meet the analytical context. Indeed, the information system allows the real connection between and sharing of all information necessary among the participants of the SCM. Much of the literature propounds the need for integration, leading to extension of the supply chain concept, as firms pursue IT implementations which are premised solely on internal benefits (Smart, 2008). Order visibility has a strong influence on the quality of customer service. Indeed, all the links in the chain are concerned, since the supplier to the customer and customer service performance are really dependent on customer order visibility. Traditionally, performance was considered from a financial point of view, where the satisfaction of the shareholders, as recipients, is privileged (Batsch, 1996). However, more and more research conceives of a multi-criterion and multi-dimensional evaluation in which the interests of all the actors are integrated (Kaplan and Norton, 1996).

The following synthesis is proposed concerning the question of Alpha's key performance indicators (KPIs).

For the service failure rate performance measurement, Alpha has an internal instrument panel to follow up failures the following day. For example, three interesting measure indicators allow Alpha to be aware of its errors. On one side, these errors can result from technician incompetence (Alpha error). On the other side, errors can result from incorrect information given in the first place (customer error). For example, a customer does not give necessary information such as the street number. Finally, Alpha is able to know the service success rate with and without exceeding the budget. The service extension rate is an indicator very important to calculate as it penalizes Alpha and makes invoicing corrections in the customer favour. The service success rate (100 per cent) depends upon whether a margin is too limiting because SMEs have many competitors in the telecommunications field. It is, therefore, necessary to have a 100 per cent service success rate. The success of this rate can be explained by two elements: first, Alpha's experience and reactivity; second, Alpha counts the corrections among its successes.

6. Summary

The contributions of the research can be presented in the theoretical and managerial dimensions. We have tried to enrich the conceptual framework attached to the SCM concept. We identified a set of factors that define Alpha's SCM process. In the theoretical dimension, two levels of contribution are distinguished: first, this research is, in general, part of a quest to advance work on the concept of SCM to consider the importance of customer service, and, more specifically, to shed light on detailing all the means used by upstream organizations to evaluate customer service in SCM. This study was not intended to elucidate the important factors of customer service in the SCM field. We have instead tried to enrich the understanding of the mechanisms, leading to an extensive empirical study. This has allowed us to reveal the explanatory factors of their development. Our proposals are exploratory, or simply to expand the scope of existing recommendations. We also tried to understand the complex relationship between customer service and performance, and provide further insight into the relationship between several of the dimensions in a context of uncertainty. Possible extensions of our paper are partly related to the limits previously highlighted, but also to our commitment to enhance the initial results that emerged. To gain better external validity, we will, naturally, reiterate our protocol in other organizational fields, focusing in depth on a significant number of cases, choosing examples in similar industries. This would highlight elements of comparison and establish if the dimensions identified in this research can be found in other cases. In particular, concerning the KPIs proposed in Table IV. This case study had the aim of leading a qualitative analysis in relation to internal actors. A summary of the results obtained can be articulated as follows: each project has its own indicators and an exhaustive list of criteria evaluation is not provided. This proposal will help in providing a picture of the services to improve the following: the relationship with the customer (Commercial and Project Managers reporting on customer follow-ups); operational reporting (internal indicators, quality reports); invoice control and indicator follow-ups by the Project Manager; and cost management. Alpha must share its intellectual resources and information with its partners under penalty of desynchronizing the rest of the chain and creating bottlenecks. All the actors should be involved – commercial, technical, data processing and financial – which will provide indicators to measure performance and the effectiveness of the Project Manager, CEO and HR, which will become a true added value. Indeed, a model could be used to predict which SMEs are more likely to become adopters of enterprise systems (ERP, customer relationship management, SCM and e-procurement) (Ramdani *et al.*, 2009). SCM is thus the search for excellent total performance in a chain made up of companies which are independent but bound by a common objective: the satisfaction of the end customer.

References

Baglin, G., Bruel, O., Carreau, A., Greil, M. and Delft, C. (2001), *Management Industriel et Logistique*, Economica, Paris.

Bardin, L. (1993), *L'analyse de contenu*, PUF, Paris.

Batsch, L. (1996), "Finance et contrôle: à propos de la 'corporate governance", Cahier de recherche du CEREG, No. 9606, Université Paris-Dauphine, Paris.

Brockmann, T. (1999), "Warehousing trends in the 21st century", *IIE Solutions*, Vol. 31 No. 7, pp. 36-40.

Carbone, V., Zeroual, T. and Blanquart, C. (2006), "Supply chain management: Portée et limites – l'apport des théories des réseaux", Conférence Internationale de Management Stratégique, Annecy, Genève, 13-16 Juin.

Christopher, M. (1992), *Logistics: The Strategic Issues*, Chapman & Hall, London.

Christopher, M. (1994), "New direction in logistics", in Cooper, J. (Ed.), *Logistic and Distribution Planning*, 2nd ed., Kogan Page, London, pp. 15-24.

Christopher, M. (1997), *Marketing Logistics*, Butterworth-Heinemann, Oxford.

Christopher, M. (2011), *Logistics & Supply Chain Management*, 4th ed., Prentice Hall, London.

Colin, J. (2002), "De la maîtrise des opérations logistiques au supply chain management", Gestion 2000, Janvier-Février, pp. 59-75.

Croom, S., Romano, P. and Giannakis, M. (2000), "Supply chain management: an analytical framework for critical literature review", *European Journal of Purchasing and Supply Chain Management*, Vol. 6, pp. 67-83.

Demers, C. (2003), *L'entretien, in conduire un projet de recherche, une perspective qualitative*, ouvrage coordonné par Y. Giordano, pp. 173-210.

Dornier, P.P. (2006), "Pourquoi le supply chain management est-il devenu un enjeu si difficile à maîtriser?", *Réalités industrielles*, Vol. 11 No. 5, pp. 0-16.

Ellram, L. (1996), "The use of the case study method in logistics research", *Journal of Business Logistics*, Vol. 17 No. 2, pp. 93-138.

Esteves, J. (2009), "A benefits realisation road-map framework for ERP usage in small and medium-sized enterprises", *Journal of Enterprise Information Management*, Vol. 22 Nos 1/2, pp. 25-35.

Fabbe-Costes, N. (2000), "Supply chain management: concepts et pratiques", *Conférence-débat à IAE d'Aix en Provence, Avril*, Aix en Provence.

Fulconis, F. (2000), "La compétitivité dans les structures en réseau. Méthode d'analyse et perspectives managériales", Thèse de Doctorat en Sciences de Gestion, Université de Nice Sophia-Anti-polis, Nice.

Global Logistics Research Team Michigan State University (1995), *World Class Logistics: The Challenge of Managing Continuous Change*, Council of Logistics Management, Oak Brook, Ill.

Grant, D.B., Teller, C. and Kotzab, H. (2005), "Using qualitative methods to complement quantitative research approach in logistics and supply chain management", *Proceedings of the Thirty-Fourth Annual Supply Chain Management Education Conference, Council of Supply Chain Management Professionals, San Diego, CA, October*.

Haar, J.M. and Spell, C.S. (2008), "Predicting total quality management adoption in New Zealand: the moderating effect of organisational size", *Journal of Enterprise Information Management*, Vol. 21 No. 2, pp. 161-178.

Handfield, R.B. and Nichols, E.L. (2002), "Supply chain redesign", *Financial Times Management*, pp. 11-12.

Harland, C. (1996), "Supply chain management: relationship, chains and networks", *British Newspaper of Management*, Vol. 7 No. 1, pp. 63-80.

Joffre, P. and Koenig, G. (1992), *Gestion stratégique, l'entreprise, ses partenaires adversaires et leurs univers*, Editions Litec, Paris.

Kaplan, R. and Norton, D. (1996), "Using the balanced scorecard as a strategic management system", *Harvard Business Review*, Vol. 74 No. 1, pp. 75-85.

Kyj, M. (1987), "Customer service as a competitive tool", *Industrial Marketing Management*, Vol. 16 No. 3, pp. 225-230.

Lamming, R., Johonson, T., Zheng, J. and Harland, C. (2000), "Networking activities in supply networks", *Journal of Strategic Marketing*, Vol. 8 No. 2, pp. 161-181.

Livingstone, G. (1992), "Measuring customer service in distribution", *International Journal of Physical Distribution & Logistics Management*, Vol. 22 No. 6, pp. 4-7.

Loomba, A.P.S. (1996), "Linkages between product distribution and service support functions", *International Journal of Physical Distribution & Logistics Management*, Vol. 26 No. 4, pp. 4-22.

Maxwell, J. (1992), "Understanding and validity in qualitative research", *Harvard Educational Review*, Vol. 62 No. 3, pp. 279-300.

Mentzer, J.T. (2004), *Fundamentals of Supply Chain Management*, Sage Publications, Thousand Oaks, CA.

Mentzer, J.T., Dewitt, W. and Keebler, J.S. (2001), "Définir le supply chain management", *Logistique & Management*, Vol. 9 No. 2, pp. 3-18.

Miles, M. and Huberman, A.M. (1994), *Qualitative Data Analysis: An Expanded (traduction Française 2003 de Boeck Université), Sourcebook*, Sage Publication, Thousand Oaks, CA.

Miles, R.E. and Snow, C.C. (1998), *Organizational, Strategy, Structure and Process*, McGraw-Hill, New York, NY.

Quinn, J.B. (1994), *L'entreprise intelligente*, Dunod, Paris.

Ramdani, B., Kawalek, P. and Lorenzo, O. (2009), "Predicting SMEs' adoption of enterprise systems", *Journal of Enterprise Information Management*, Vol. 22 Nos 1/2, pp. 10-24.

Samii, A.K. (2004), *Stratégie logistique, supply chain management*, Dunod, Paris.

Shahneel, B., Shafqat, H. and Atta, B. (2008), "Analysing the factors responsible for effectiveness of implementation and integration of enterprise resource planning systems in the printing industry", *Journal of Enterprise Information Management*, Vol. 21 No. 2, pp. 139-161.

Smart, A. (2008), "e-Business and supply chain integration", *Journal of Enterprise Information Management*, Vol. 21 No. 3, pp. 227-246.

Tarondeau, J.-C., El-Ouardighi, F. and Mesnard, X. (2008), "L'expérience française du supply chain management", *Revue Française de Gestion*, Vol. 6 No. 186, pp. 99-106.

Tchokogué, A., Jobin, M.H. and Beaulieu, M. (1999), *Evaluation du service à la clientele: enrichir la perspective client par la perspective logistique*, Cahier de recherche, pp. 99-106.

Tchokogué, A., Jobin, M.H. and Beaulieu, M. (2001), "Evaluation du service à la clientele: enrichir la perspective client par la perspective logistique", *Revue Française de Gestion*, Vol. 181, pp. 59-68.

Tixier, D., Mathé, H. and Colin, J. (1998), *La logistique d'entreprise*, Dunod, Paris.

Tucker, F.G. (1983), "Creative customer service management", *International Journal of Distribution & Materials Management*, Vol. 13 No. 3, pp. 34-50.

Walsham, G. (1995), "Interpretive case studies in IS research: nature and method", *European Journal of Information Systems*, Vol. 4 No. 2, pp. 74-81.

Wessel, K. (1996), *Empirisches Arbeiten in Wirtschafts-und Sozialgeographie*, Schôningh, Papederborn.

Yin, R.K. (2003), *Case study Research: Design and Methods*, 3rd ed., Sage Publications, Thousand Oaks, CA.

Further reading

Atkinson, A., Waterhouse, J. and Wells, R. (1997), "A stakeholder approach to strategic measurement", *Sloan Management Review*, Vol. 38 No. 3, pp. 25-37.

Lynch, R.L. and Cross, K.F. (1995), *Measure Up: How to Measure Corporate Performance*, 2nd ed., Blackwell Publishers Ltd, Oxford.

About the author

Fatiha Naoui is an Associate Professor in Supply Chain Management, La Rochelle Business-School – CEREG (Management Research Center), France. Professor Fatiha Naoui can be contacted at: naouif@esc-larochelle.fr