



IT 495

Selected Topics in Information Technology-1

IT Service Analysis, Design, and Operation

Part 1: Introduction

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Acknowledgment

- Slides are based on the ITIL® Foundation Course developed by the Software Engineering Competence Center (SECC).
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- I have modified them and added new slides

Competence and Skills For Service Management

- Whatever the role, it is imperative that the person carrying out that role has the following attributes:
 - Awareness of the business priorities, objectives and business drivers
 - Awareness of the role IT plays in enabling the business objectives to be met
 - Customer service skills
 - Awareness of what IT can deliver to the business, including latest capabilities
 - The competence, knowledge and information necessary to complete their role
 - The ability to use, understand and interpret the best practice, policies and procedures to ensure adherence.

Delivering service successfully depends on personnel involved in service management having the appropriate education, training, skills and experience. People need to understand their role and how they contribute to the overall organization, services and processes to be effective and motivated. As changes are made, job requirements, roles, responsibilities and competencies should be updated if necessary.

Each service lifecycle stage depends on appropriate skills and experience of people and their knowledge to make key decisions. In many organizations, personnel will deliver tasks appropriate to more than one lifecycle stage. They may well find themselves allocated (fully or partially) from operational tasks to support a design exercise and then follow that service through service transition. They may then, via early life support activities, move into support of the new or changed services that they have been involved in designing and implementing into the live environment.

The following are examples of attributes required in many of the roles, dependent on the organization and the specific roles assigned:

- Management skills – both from a person management perspective and from the overall control of process
- Ability to handle meetings – organizing, chairing, and documenting meetings and ensuring that actions are followed up
- Communication skills – an important element of all roles is raising awareness of the processes in place to ensure buy-in and conformance. An ability to communicate at all levels within the organization will be imperative
- Articulateness – both written (e.g. for reports) and verbal
- Negotiation skills are required for several aspects, such as procurement and contracts
- An analytical mind – to analyse metrics produced from the activity.

Need for Best Practice

- Organizations seek to become more competitive:
 - benchmark (against peers)
 - seek to close gaps in capabilities
- Gaps can be closed by adopting best practices in wide industry use:
 - public frameworks
 - standards
 - proprietary knowledge of organizations and individuals

Organizations benchmark themselves against peers and seek to close gaps in capabilities. This enables them to become more competitive by improving their ability to deliver quality services that meet the needs of their customers at a price their customers can afford.

One way to close such gaps is the adoption of best practices in wide industry use. There are several sources for best practice including public frameworks, standards and the proprietary knowledge of organizations and individuals.

Best Practice in Public Domain

- Public frameworks and standards are attractive when compared with proprietary knowledge:
 - Proprietary knowledge is difficult to adopt
 - Proprietary knowledge is customized for the specific needs of the business
 - Owners of proprietary knowledge expect to be rewarded for their investments
 - Publicly available frameworks and standards are validated across a diverse set of environments
 - The knowledge of public frameworks is more likely to be widely distributed
- Ignoring public frameworks and standards can place an organization at a disadvantage
- ITIL is the most widely recognized source of best-practice guidance in the area of ITSM

Public frameworks and standards are attractive when compared with proprietary knowledge for the following reasons:

- Proprietary knowledge is deeply embedded in organizations and therefore difficult to adopt, replicate or even transfer with the cooperation of the owners. Such knowledge is often in the form of tacit knowledge which is inextricable and poorly documented.
- Proprietary knowledge is customized for the local context and the specific needs of the business to the point of being idiosyncratic. Unless the recipients of such knowledge have matching circumstances, the knowledge may not be as effective in use.
- Owners of proprietary knowledge expect to be rewarded for their investments. They may make such knowledge available only under commercial terms through purchases and licensing agreements.
- Publicly available frameworks and standards such as ITIL, LEAN, Six Sigma, COBIT, CMMI, PRINCE2, PMBOK®, ISO 9000, ISO/IEC 20000 and ISO/IEC 27001 are validated across a diverse set of environments and situations rather than the limited experience of a single organization. They are subject to broad review across multiple organizations and disciplines, and vetted by diverse sets of partners, suppliers and competitors.
- The knowledge of public frameworks is more likely to be widely distributed among a large community of professionals through publicly available training and certification. It is easier for organizations to acquire such knowledge through the labour market.

Ignoring public frameworks and standards can needlessly place an organization at a disadvantage. Organizations should cultivate their own proprietary knowledge on top of a body of knowledge based on public frameworks and standards. Collaboration and coordination across organizations become easier on the basis of shared practices and standards.

ITIL® as Source of Good Practice for ITSM

- **ITIL Framework is a source of good practice in service management.**
 - Body of knowledge used by organizations world-wide to establish and improve capabilities in service management
 - ISO/IEC 20000 provides a formal and universal standard for organizations seeking to have their service management capabilities audited and certified
- **The ITIL Library has the following components:**
 - The **ITIL Core**: best practice guidance applicable to all types of organizations who provide services to a business.
 - The **ITIL Complementary Guidance**: a complementary set of publications with guidance specific to industry sectors, organization types, operating models, and technology architectures.

ITIL® Benefits

ITIL is adopted by organizations to enable them to:

- Deliver value for customers through services
- Integrate the service and business strategies
- Measure, monitor and optimize IT services cost and service provider performance
- Manage the IT investment, budget, risk, knowledge, and capabilities and resources
- Improve the interaction and relationship with customers

ITIL is adopted by organizations to enable them to:

- Deliver value for customers through services
- Integrate the strategy for services with the business strategy and customer needs
- Measure, monitor and optimize IT services and service provider performance
- Manage the IT investment and budget
- Manage risk
- Manage knowledge
- Manage capabilities and resources to deliver services effectively and efficiently
- Enable adoption of a standard approach to service management across the enterprise
- Change the organizational culture to support the achievement of sustained success
- Improve the interaction and relationship with customers
- Coordinate the delivery of goods and services across the value network
- Optimize and reduce costs.

Why ITIL® is Successful?

- ITIL is successful because it describes practices that enable organizations to deliver benefits, return on investment and sustained success
- The following defines the key factors that contribute to the ITIL global success:
 - **Vendor-neutral:** ITIL is owned by the UK government and is not tied to any commercial proprietary practice or solution
 - **Non-prescriptive:** ITIL offers robust practices that have applicability to all types of service organization with various scale and scope
 - **Best practice:** ITIL represents the learning experiences of the world's top service providers

ITIL embraces a practical approach to service management – do what works. And what works is adapting a common framework of practices that unite all areas of IT service provision towards a single aim – that of delivering value to the business. The following list defines the key characteristics of ITIL that contribute to its global success:

- **Vendor-neutral** ITIL service management practices are applicable in any IT organization because they are not based on any particular technology platform or industry type. ITIL is owned by the UK government and is not tied to any commercial proprietary practice or solution.
- **Non-prescriptive** ITIL offers robust, mature and time-tested practices that have applicability to all types of service organization. It continues to be useful and relevant in public and private sectors, internal and external service providers, small, medium and large enterprises, and within any technical environment. Organizations should adopt ITIL and adapt it to meet the needs of the IT organization and their customers.
- **Best practice** ITIL represents the learning experiences and thought leadership of the world's best-in-class service providers.

Service – Definition

Service

A means of co-delivering value to customers by facilitating **outcomes** customers want to achieve without the *ownership of specific costs and risks*
(ITIL Text)

Outcome

The result of carrying out an activity, following a process, or delivering an IT service etc. The term is used to refer to intended results, as well as to actual results
(ITIL Text)

IT Service

A service provided by an IT service provider. An IT service is made up of a combination of information technology, people and processes.
(ITIL Text)

Services are a means of delivering value to customers by facilitating the outcomes customers want to achieve without the ownership of specific costs and risks. Services facilitate outcomes by enhancing the performance of associated tasks and reducing the effect of constraints, for example, manual processes take too long and are too expensive for the organization to be competitive. These constraints may include regulation, lack of funding or capacity, or technology limitations. The end result is an increase in the probability of desired outcomes. While some services enhance performance of tasks, others have a more direct impact – they perform the task itself.

An outcome-based definition of service moves IT organizations beyond business-IT alignment towards business-IT integration. Customer outcomes become the ultimate concern of business relationship managers instead of the gathering of requirements, which is necessary but not sufficient. Requirements are generated for internal coordination and control only after customer outcomes are well understood.

Customers seek outcomes but do not wish to have accountability or ownership of all the associated costs and risks. All services must have a budget when they go live and this must be managed. The service cost is reflected in financial terms such as return on investment (ROI) and total cost of ownership (TCO). The customer will only be exposed to the overall cost or price of a service, which will include all the provider's costs and risk mitigation measures (and any profit margin if appropriate). The customer can then judge the value of a service based on a comparison of cost or price and reliability with the desired outcome.

Example: a business unit that needs a terabyte of secure storage to support its online shopping system. From a strategic perspective, it wants the staff, equipment, facilities and infrastructure for a terabyte of storage to remain within its span of control. It does not want, however, to be accountable for all the associated costs and risks, real or nominal, actual or perceived. Fortunately, there is an IT group within the business with specialized knowledge and experience in large-scale storage systems, and the confidence to control the associated costs and risks. The business unit agrees to pay for the storage service provided by the group under specific terms and conditions. The business unit remains responsible for the fulfilment of online purchase orders. It is not responsible for the operation and maintenance of fault-tolerant configurations of storage devices, dedicated and redundant power supplies, qualified personnel, or the security of the building perimeter, administrative expenses, insurance, compliance with safety regulations, contingency measures or the optimization problem of idle capacity for unexpected surges in demand.

Service – Nature of Services

- Intangible nature of the output and intermediate products of service processes (difficult to measure, control and validate)
- Demand is tightly coupled with the customer's assets
- High level of contact for producers and consumers of services
- The perishable nature of service output and service capacity

Service management capabilities are influenced by the following challenges that distinguish services from other systems of value creation, such as manufacturing, mining and agriculture:

- Intangible nature of the output and intermediate products of service processes: they are difficult to measure, control and validate (or prove)
- Demand is tightly coupled with the customer's assets: users and other customer assets such as processes, applications, documents and transactions arrive with demand and stimulate service production
- High level of contact for producers and consumers of services: there is little or no buffer between the service provider's creation of the service and the customer's consumption of that service
- The perishable nature of service output and service capacity: there is value for the customer from assurance on the continued supply of consistent quality. Providers need to secure a steady supply of demand from customers.

Service – Customers and Users

- **Customers:** Those who buy goods or services
 - The customer of an IT service provider is the person or group who defines and agrees the service level targets
- **Users:** Those who use the service on a day-to-day basis.
- Some customers do not use the IT service directly

Service – Types of Customers

- **Internal customers:** people or departments who work in the same organization as the service provider
- **External customers:** people who are not employed by the organization (or organizations that are separate legal entities) that purchase services from the service provider in terms of a legally binding contract or agreement

There is a difference between customers who work in the same organization as the IT service provider, and customers who work for another organization.

- **Internal customers** are people or departments who work in the same organization as the service provider. For example, the marketing department is an internal customer of the IT organization because it uses IT services. The head of marketing and the CIO both report to the chief executive officer (CEO). If IT charges for its services, the money paid is an internal transaction in the organization's accounting system – i.e. not real revenue.
- **External customers** are people who are not employed by the organization, or organizations that are separate legal entities, that purchase services from the service provider in terms of a legally binding contract or agreement. When the service provider charges for services they are paid with 'real' money, or through an exchange of services or products. For example, an airline might obtain consulting services from a large consulting firm. Two-thirds of the contract value is paid in cash, and one-third is paid in air tickets at an equivalent value.

Many IT organizations who traditionally provide services to internal customers find that they are dealing directly with external customers because of the online services that they provide. It is important that the service strategy clearly identifies how the IT organization interacts with these customers, and who owns and manages the relationship with them.

It is very important to note that both internal and external customers must be provided with the agreed level of service, with the same levels of customer service. The way in which services are designed, transitioned, delivered and improved, however, is often quite different.

Service – Customer Satisfaction

- Customers need to:
 - Be satisfied with the level of service
 - Feel confident in the ability of the service provider
- Challenge: customer expectations keep shifting. Failing to track and adjust to such changes may cause service providers to lose business
- Service providers need to learn how changes and shifts happens, and how they can adapt their services to meet the changing customer environment

Customer satisfaction is very important. Customers need to be satisfied with the level of service and feel confident in the ability of the service provider to continue providing that level of service – or even improving it over time. The difficulty is that customer expectations keep shifting, and a service provider that does not track this will soon find itself losing business. *ITIL Service Strategy* is helpful in understanding how this happens, and how a service provider can adapt its services to meet the changing customer environment.

The definition of a service specifically refers to outcomes and not outputs. The difference is important. When a service provider focuses on outputs alone, they are able to demonstrate that they delivered a specific level of service, but they do not know whether the service actually achieved the intended results. This is often characterized by situations where the IT service provider meets its service level agreements consistently, but has a low customer satisfaction rating. In other words IT is able to deliver a consistent output, but it is not enabling customers to meet their intended outcomes.

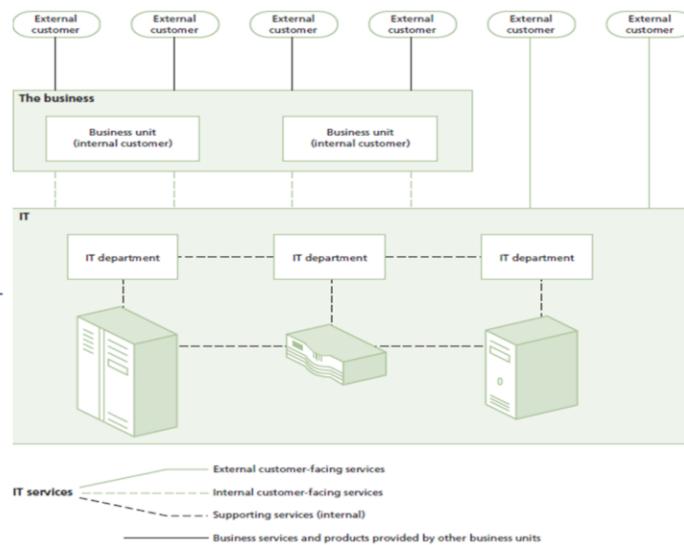
Focusing purely on achieving outputs also makes it difficult for the service provider to track changes to the customer's environment and adjust services accordingly. In addition, the potential for customer dissatisfaction is much higher, since any complaints about the service not meeting requirements is met with the standard answer 'but we delivered what was in the service level agreement'. Instead, the service provider should continually take into account whether the service is meeting the customer's needs, especially when those needs change. This is one of the reasons for holding frequent service level reviews. Outcomes are achieved when the business is able to perform activities which meet business objectives.

Service – Classification Dimensions

- Services can be classified into:
 - **Internal** or **external** based on whether they support an internal activity (internal) or achieve business outcomes (external)
 - **Core, enabling, or enhancing** based on how they relate to one another and their customers

Service –Internal and External Services

- **External services:** delivered to external customers



- **Internal services:** delivered between departments or business units in the same organization

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Internal services are delivered between departments or business units in the same organization. External services are delivered to external customers. The reason for differentiating between internal and external services is to differentiate between services that support an internal activity, and those that actually achieve business outcomes. The difference may not appear to be significant at first, since the activity to deliver the services is often similar. However, it is important to recognize that internal services have to be linked to external services before their contribution to business outcomes can be understood and measured. This is especially important when measuring the return on investment of services.

Types of IT services:

- **Supporting service:** sometimes called an infrastructure service, although they are often broader than just infrastructure: A service that is not directly used by the business, but is required by the IT service provider so they can provide other IT services – for example, directory services, naming services, the network or communication services. Supporting services are defined to allow IT teams to identify the interdependencies between IT components. They will also show how these components are used to deliver internal and external customer-facing services. Supporting services enable IT processes and services, but are not directly visible to the customer.
- **Internal customer-facing service:** An IT service that directly supports a business process managed by another business unit – for example, sales reporting service, enterprise resource management. Such a service is identified and defined by the business. If it cannot be perceived by the business as a service, then it is probably a supporting service. Internal customer-facing services rely on an integrated set of supporting services, although these are often not seen or understood by the customer or user. These services are managed according to service level agreements.
- **External customer-facing service:** An IT service that is directly provided by IT to an external customer – for example, internet access at an airport. Such a service is available to external customers and is offered to meet business objectives defined in the organization's strategy. This service type is also a business service in its own right, since it is used to conduct the business of the organization with external customers.

Service – Core, Enabling, and Enhancing Services

- *Core services*: services that deliver the basic outcomes desired by one or more customers. They represent the value that the customer wants and for which they are willing to pay
- *Enabling services*: services that are needed in order for a core service to be delivered
- *Enhancing services*: services that are added to a core service to make it more exciting or enticing to the customer

	Core service	Enabling service	Enhancing service
IT services (office automation)	Word processing	Download and installation of updates	Document publication to professional printer for high-quality brochure
IT services (benefits tracking)	Employees of a company can monitor the status of their benefits (such as health insurance and retirement accounts).	A portal that provides a user-friendly front-end access to the benefits tracking service.	Customers can create and manage a fitness or weight-loss programme. Customers who show progress in their programme are awarded a discount on their premiums.

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All services, whether internal or external, can be further classified in terms of how they relate to one another and their customers. Services can be classified as core, enabling or enhancing:

- *Core services* deliver the basic outcomes desired by one or more customers. They represent the value that the customer wants and for which they are willing to pay. Core services anchor the value proposition for the customer and provide the basis for their continued utilization and satisfaction.
- *Enabling services* are services that are needed in order for a core service to be delivered. Enabling services may or may not be visible to the customer, but the customer does not perceive them as services in their own right. They are ‘basic factors’ which enable the customer to receive the ‘real’ (core) service.
- *Enhancing services* are services that are added to a core service to make it more exciting or enticing to the customer. Enhancing services are not essential to the delivery of a core service, and are added to a core service as ‘excitement’ factors, which will encourage customers to use the core service more (or to choose the core service provided by one company over those of its competitors).

Service Management

Service Management

A set of specialized organizational capabilities for providing value to customers in the form of services

(ITIL Text)

Service Provider

An organization supplying services to one or more internal or external customers

(ITIL Text)

The use of IT today has become the utility of business. Business today wants IT services that behave like other utilities such as water, electricity or the telephone. Simply having the best technology will not ensure that IT provides utility-like reliability. Professional, responsive, value-driven service management is what brings this quality of service to the business.

Service management is a set of specialized organizational capabilities for providing value to customers in the form of services. The more mature a service provider's capabilities are, the greater is their ability to consistently produce quality services that meet the needs of the customer in a timely and cost-effective manner. The act of transforming capabilities and resources into valuable services is at the core of service management. Without these capabilities, a service organization is merely a bundle of resources that by itself has relatively low intrinsic value for customers.

Service management is more than just a set of capabilities. It is also a professional practice supported by an extensive body of knowledge, experience and skills. A global community of individuals and organizations in the public and private sectors fosters its growth and maturity. Formal schemes exist for the education, training and certification of practising organizations, and individuals influence its quality. Industry best practices, academic research and formal standards contribute to and draw from its intellectual capital.

The origins of service management are in traditional service businesses such as airlines, banks, hotels and phone companies. Its practice has grown with the adoption by IT organizations of a service-oriented approach to managing IT applications, infrastructure and processes. Solutions to business problems and support for business models, strategies and operations are increasingly in the form of services. The popularity of shared services and outsourcing has contributed to the increase in the number of organizations that behave as service providers, including internal IT organizations. This in turn has strengthened the practice of service management while at the same time imposed greater challenges.

IT Service Management

IT Service Management

The implementation and management of quality IT services that meet the needs of the business. IT service management is performed by IT service providers through an appropriate mix of people, process and information technology.

(ITIL Text)

IT Service Provider

A service provider that provides IT services to internal or external customers

(ITIL Text)

Information technology (IT) is a commonly used term that changes meaning depending on the different perspectives that a business organization or people may have of it. A key challenge is to recognize and balance these perspectives when communicating the value of IT service management (ITSM) and understanding the context for how the business sees the IT organization. Some of these meanings are:

- IT is a collection of systems, applications and infrastructures which are components or sub-assemblies of a larger product. They enable or are embedded in processes and services.
- IT is an organization with its own set of capabilities and resources. IT organizations can be of various types such as business functions, shared services units and enterprise-level core units.
- IT is a category of services utilized by business. The services are typically IT applications and infrastructure that are packaged and offered by internal IT organizations or external service providers. IT costs are treated as business expenses.
- IT is a category of business assets that provide a stream of benefits for their owners, including, but not limited to, revenue, income and profit. IT costs are treated as investments.

Every IT organization should act as a service provider, using the principles of service management to ensure that they deliver the outcomes required by their customers.

ITSM must be carried out effectively and efficiently. Managing IT from the business perspective enables organizational high performance and value creation.

A good relationship between an IT service provider and its customers relies on the customer receiving an IT service that meets its needs, at an acceptable level of performance and at a cost that the customer can afford. The IT service provider needs to work out how to achieve a balance between these three areas, and communicate with the customer if there is anything which prevents it from being able to deliver the required IT service at the agreed level of performance or price.

A service level agreement (SLA) is used to document agreements between an IT service provider and a customer. An SLA describes the IT service, documents service level targets, and specifies the responsibilities of the IT service provider and the customer. A single agreement may cover multiple IT services or multiple customers.

Service Providers

- **Type I – internal service provider:** An internal service provider that is embedded within a business unit
- **Type II – shared services unit:** An internal service provider that provides shared IT services to more than one business unit
- **Type III – external service provider:** A service provider that provides IT services to external customers

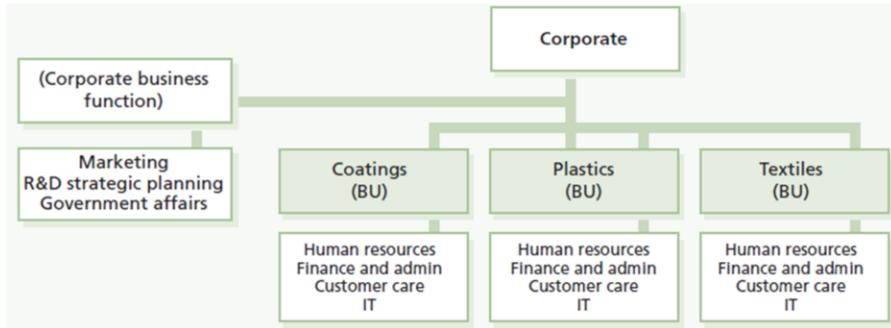
There are three main types of service provider. While most aspects of service management apply equally to all types of service provider, others aspects such as customers, contracts, competition, market spaces, revenue and strategy take on different meanings depending on the specific type. The three types are:

- **Type I – internal service provider** An internal service provider that is embedded within a business unit. There may be several Type I service providers within an organization.
- **Type II – shared services unit** An internal service provider that provides shared IT services to more than one business unit.
- **Type III – external service provider** A service provider that provides IT services to external customers.

ITSM concepts are often described in the context of only one of these types and as if only one type of IT service provider exists or is used by a given organization. In reality most organizations have a combination of IT service providers. In a single organization it is possible that some IT units are dedicated to a single business unit, others provide shared services, and yet others have been outsourced or depend on external service providers.

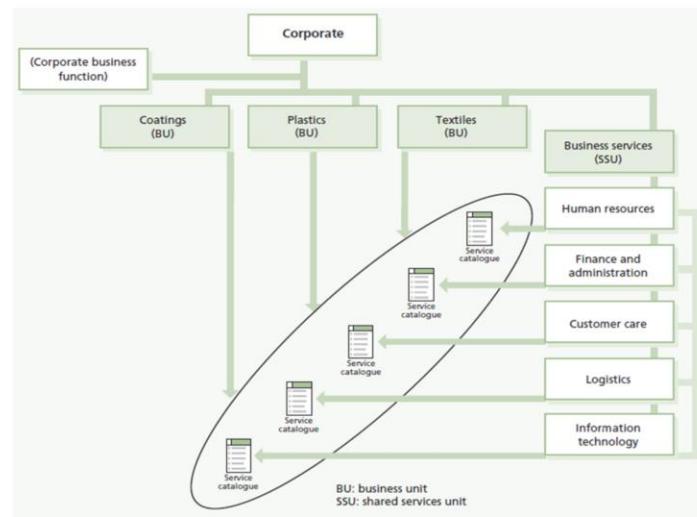
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Type I Service Provider



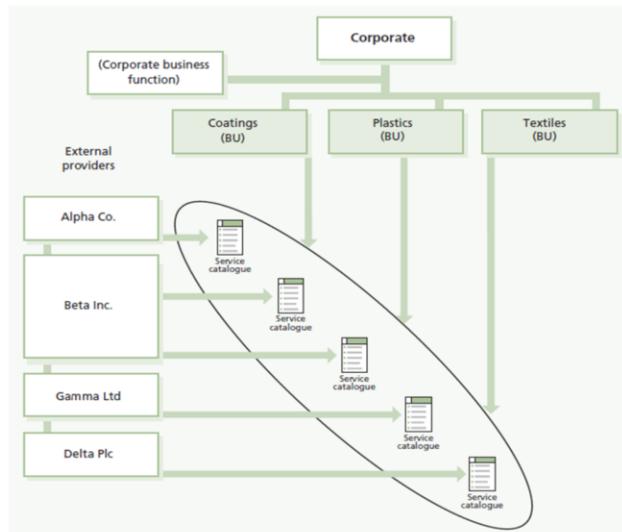
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Type II Service Provider



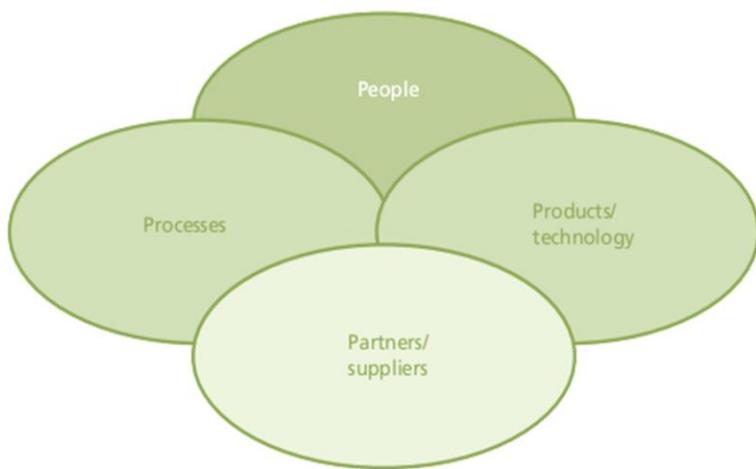
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Type III Service Provider



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The Four Ps



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Many designs, plans and projects fail through a lack of preparation and management.

The implementation of ITSM as a practice is about preparing and planning the effective and efficient use of the four Ps: the people, the processes, the products (services, technology and tools) and the partners (suppliers, manufacturers and vendors).

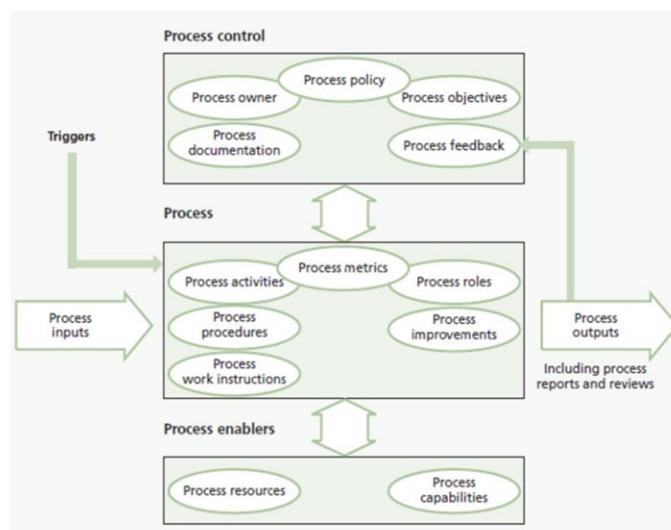
Processes

Process

a structured set of activities designed to accomplish a specific objective. A process takes one or more defined inputs and turns them into defined outputs.

(ITIL Text)

Processes Model



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A process is organized around a set of objectives. The main outputs from the process should be driven by the objectives and should include process measurements (metrics), reports and process improvement.

The output produced by a process has to conform to operational norms that are derived from business objectives. If products conform to the set norm, the process can be considered effective (because it can be repeated, measured and managed, and achieves the required outcome). If the activities of the process are carried out with a minimum use of resources, the process can also be considered efficient.

Inputs are data or information used by the process and may be the output from another process.

A process, or an activity within a process, is initiated by a trigger. A trigger may be the arrival of an input or other event. For example, the failure of a server may trigger the event management and incident management processes.

A process may include any of the roles, responsibilities, tools and management controls required to deliver the outputs reliably. A process may define policies, standards, guidelines, activities and work instructions if they are needed.

Processes, once defined, should be documented and controlled. Once under control, they can be repeated and managed. Process measurement and metrics can be built into the process to control and improve the process. Process analysis, results and metrics should be incorporated in regular management reports and process improvements.

Characteristics of Process

- **Measurability**

- Process is performance-driven and should be measurable on various aspects such as: cost, quality, duration and productivity

- **Specific results**

- A process exists to deliver a specific and individually identifiable and countable result

- **Customers**

- A process delivers its primary results to a customer (internal or external) or stakeholder

- **Responsiveness to specific triggers**

- A process should be traceable to a specific trigger even if the process is ongoing or iterative

Functions

- A function is a team or group of people and the tools (resources) they use to carry out one or more processes or activities
 - A function may be broken out and performed by several departments, teams, and groups
 - A function may be embodied within a single organizational unit (e.g., the service desk)
 - Multiple functions may be performed by one person or group (e.g., a technical management department may include within the service desk function)

For the service lifecycle to be successful, an organization will need to clearly define the roles and responsibilities required to undertake the processes and activities involved in each lifecycle stage. These roles will need to be assigned to individuals, and an appropriate organization structure of teams, groups or functions will need to be established and managed. These are defined as follows:

- **Group** A group is a number of people who are similar in some way. In ITIL, groups refer to people who perform similar activities – even though they may work on different technologies or report into different organizational structures or even different companies. Groups are usually not formal organizational structures, but are very useful in defining common processes across the organization – for example, ensuring that all people who resolve incidents complete the incident record in the same way.
- **Team** A team is a more formal type of group. These are people who work together to achieve a common objective, but not necessarily in the same organizational structure. Team members can be co-located, or work in multiple locations and operate virtually. Teams are useful for collaboration, or for dealing with a situation of a temporary or transitional nature. Examples of teams include project teams, application development teams (often consisting of people from several different business units) and incident or problem resolution teams.
- **Department** Departments are formal organizational structures which exist to perform a specific set of defined activities on an ongoing basis. Departments have a hierarchical reporting structure with managers who are usually responsible for the execution of the activities and also for day-to-day management of the staff in the department.
- **Division** A division refers to a number of departments that have been grouped together, often by geography or product line. A division is normally self-contained.

Roles

Role

A role is a set of responsibilities, activities and authorities granted to a person or team. A role is defined in a process or function. One person or team may have multiple roles – for example, the roles of configuration manager and change manager may be carried out by a single person.

(ITIL Text)

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A number of roles need to be performed during the service lifecycle. The core ITIL publications provide guidelines and examples of role descriptions. These are not exhaustive or prescriptive, and in many cases roles will need to be combined or separated. Organizations should take care to apply this guidance in a way that suits their own structure and objectives.

Roles are often confused with job titles but it is important to realize that they are not the same. Each organization will define appropriate job titles and job descriptions which suit their needs, and individuals holding these job titles can perform one or more of the required roles.

It should also be recognized that a person may, as part of their job assignment, perform a single task that represents participation in more than one process. For example, a technical analyst who submits a request for change (RFC) to add memory to a server to resolve a performance problem is participating in activities of the change management process at the same time as taking part in activities of the capacity management and problem management processes.

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 - Multiple functions may be performed by one person or group (e.g., a technical management department may include within the service desk function)

For the service lifecycle to be successful, an organization will need to clearly define the roles and responsibilities required to undertake the processes and activities involved in each lifecycle stage. These roles will need to be assigned to individuals, and an appropriate organization structure of teams, groups or functions will need to be established and managed. These are defined as follows:

•**Group** A group is a number of people who are similar in some way. In ITIL, groups refer to people who perform similar activities – even though they may work on different technologies or report into different organizational structures or even different companies. Groups are usually not formal organizational structures, but are very useful in defining common processes across the organization – for example, ensuring that all people who resolve incidents complete the incident record in the same way.

•**Team** A team is a more formal type of group. These are people who work together to achieve a common objective, but not necessarily in the same organizational structure. Team members can be co-located, or work in multiple locations and operate virtually. Teams are useful for collaboration, or for dealing with a situation of a temporary or transitional nature. Examples of teams include project teams, application development teams (often consisting of people from several different business units) and incident or problem resolution teams.

•**Department** Departments are formal organizational structures which exist to perform a specific set of defined activities on an ongoing basis. Departments have a hierarchical reporting structure with managers who are usually responsible for the execution of the activities and also for day-to-day management of the staff in the department.

•**Division** A division refers to a number of departments that have been grouped together, often by geography or product line. A division is normally self-contained.

The RACI Model

- The RACI model (authority matrix) is used to define the roles and responsibilities for processes and activities that need to be performed

	Director service management	Service level manager	Problem manager	Security manager	Procurement manager
Activity 1	AR	C	I	I	C
Activity 2	A	R	C	C	C
Activity 3	I	A	R	I	C
Activity 4	I	A	R	I	
Activity 5	I	R	A	C	I

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When designing a service or a process, it is imperative that all the roles are clearly defined. A trademark of high-performing organizations is the ability to make the right decisions quickly and execute them effectively. Whether the decision involves a strategic choice or a critical operation, being clear on who has input, who decides and who takes action will enable the organization to move forward rapidly.

The RACI model or ‘authority matrix’ is often used within organizations to define the roles and responsibilities in relation to processes and activities. The RACI model provides a compact, concise, easy method of tracking who does what in each process and it enables decisions to be made with pace and confidence.

RACI is an acronym for the four main roles of being:

• **Responsible** The person or people responsible for correct execution – for getting the job done

• **Accountable** The person who has ownership of quality and the end result. Only one person can be accountable for each task

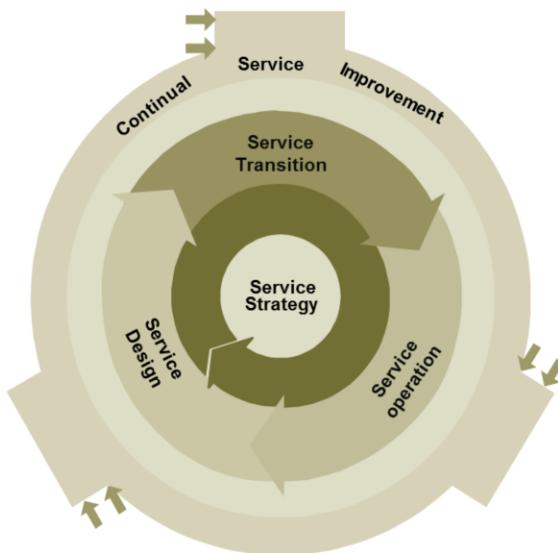
• **Consulted** The people who are consulted and whose opinions are sought. They have involvement through input of knowledge and information

• **Informed** The people who are kept up to date on progress. They receive information about process execution and quality.

Some use the RACI definitions, but switch the order to Accountable, Responsible, Consulted and Informed or ARCI, but the meanings and usage remain unaltered.

Applying the RACI model to a process, only one person should hold end-to-end accountability for the process, typically the process owner. Similarly, there is only one person accountable for any individual activity, although several people may be responsible for executing parts of the activity.

ITIL Core – The Service Lifecycle



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The ITIL core consists of five lifecycle publications. Each provides part of the guidance necessary for an integrated approach as required by the ISO/IEC 20000 standard specification. The five publications are:

- *ITIL Service Strategy*
- *ITIL Service Design*
- *ITIL Service Transition*
- *ITIL Service Operation*
- *ITIL Continual Service Improvement*

Each one addresses capabilities having direct impact on a service provider's performance. The core is expected to provide structure, stability and strength to service management capabilities, with durable principles, methods and tools.

ITIL Service Strategy

- Enables value creation by understanding organizational objectives and customer needs
- Describes the principles underpinning the practice of service management which are useful for developing service management policies, guidelines and processes across the ITIL service lifecycle

At the centre of the service lifecycle is service strategy. Value creation begins here with understanding organizational objectives and customer needs. Every organizational asset including people, processes and products should support the strategy.

ITIL Service Strategy provides guidance on how to view service management not only as an organizational capability but as a strategic asset. It describes the principles underpinning the practice of service management which are useful for developing service management policies, guidelines and processes across the ITIL service lifecycle.

Topics covered in *ITIL Service Strategy* include the development of market spaces, characteristics of internal and external provider types, service assets, the service portfolio and implementation of strategy through the service lifecycle. Business relationship management, demand management, financial management, organizational development and strategic risks are among the other major topics.

Organizations should use *ITIL Service Strategy* to set objectives and expectations of performance towards serving customers and market spaces, and to identify, select and prioritize opportunities. Service strategy is about ensuring that organizations are in a position to handle the costs and risks associated with their service portfolios, and are set up not just for operational effectiveness but for distinctive performance.

ITIL Service Design

- Turns a service strategy into a plan for delivering the business objectives
- Provides guidance for the design and development of services and service management practices
- Covers design principles and methods for converting strategic objectives into portfolios of services and service assets
- Guides organizations on how to develop design capabilities for service management

For services to provide true value to the business, they must be designed with the business objectives in mind. Design encompasses the whole IT organization, for it is the organization as a whole that delivers and supports the services. Service design is the stage in the lifecycle that turns a service strategy into a plan for delivering the business objectives.

ITIL Service Design provides guidance for the design and development of services and service management practices. It covers design principles and methods for converting strategic objectives into portfolios of services and service assets. The scope of *ITIL Service Design* is not limited to new services. It includes the changes and improvements necessary to increase or maintain value to customers over the lifecycle of services, the continuity of services, achievement of service levels, and conformance to standards and regulations. It guides organizations on how to develop design capabilities for service management.

Other topics in *ITIL Service Design* include design coordination, service catalogue management, service level management, availability management, capacity management, IT service continuity management, information security management and supplier management.

ITIL Service Transition

- Provides guidance for the development and improvement of capabilities for introducing new and changed services into supported environments
- Ensures that the value(s) identified in the service strategy, and encoded in service design, are effectively transitioned so that they can be realized in service operation
- Provides guidance on managing the complexity related to changes to services and service management processes

ITIL Service Transition provides guidance for the development and improvement of capabilities for introducing new and changed services into supported environments. It describes how to transition an organization from one state to another while controlling risk and supporting organizational knowledge for decision support. It ensures that the value(s) identified in the service strategy, and encoded in service design, are effectively transitioned so that they can be realized in service operation.

ITIL Service Transition describes best practice in transition planning and support, change management, service asset and configuration management, release and deployment management, service validation and testing, change evaluation and knowledge management. It provides guidance on managing the complexity related to changes to services and service management processes, preventing undesired consequences while allowing for innovation.

ITIL Service Transition also introduces the service knowledge management system, which can support organizational learning and help to improve the overall efficiency and effectiveness of all stages of the service lifecycle. This will enable people to benefit from the knowledge and experience of others, support informed decision-making, and improve the management of services.

ITIL Service Operation

- Describes best practice for managing services in supported environments
- Includes guidance on achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer, the users and the service provider
- Provides guidance on how to maintain stability in service operation, allowing for changes in design, scale, scope and service levels

ITIL Service Operation describes best practice for managing services in supported environments. It includes guidance on achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer, the users and the service provider.

Strategic objectives are ultimately realized through service operation, therefore making it a critical capability. *ITIL Service Operation* provides guidance on how to maintain stability in service operation, allowing for changes in design, scale, scope and service levels. Organizations are provided with detailed process guidelines, methods and tools for use in two major control perspectives: reactive and proactive. Managers and practitioners are provided with knowledge allowing them to make better decisions in areas such as managing the availability of services, controlling demand, optimizing capacity utilization, scheduling of operations, and avoiding or resolving service incidents and managing problems. New models and architectures such as shared services, utility computing, web services and mobile commerce to support service operation are described.

Other topics in *ITIL Service Operation* include event management, incident management, request fulfilment, problem management and access management processes; as well as the service desk, technical management, IT operations management and application management functions.

ITIL Continual Service Improvement

- Provides guidance on creating and maintaining value for customers through better strategy, design, transition and operation of services
- Describes best practice for achieving incremental and large-scale improvements in service quality, operational efficiency and business continuity, and for ensuring that the service portfolio continues to be aligned to business needs

ITIL Continual Service Improvement provides guidance on creating and maintaining value for customers through better strategy, design, transition and operation of services. It combines principles, practices and methods from quality management, change management and capability improvement.

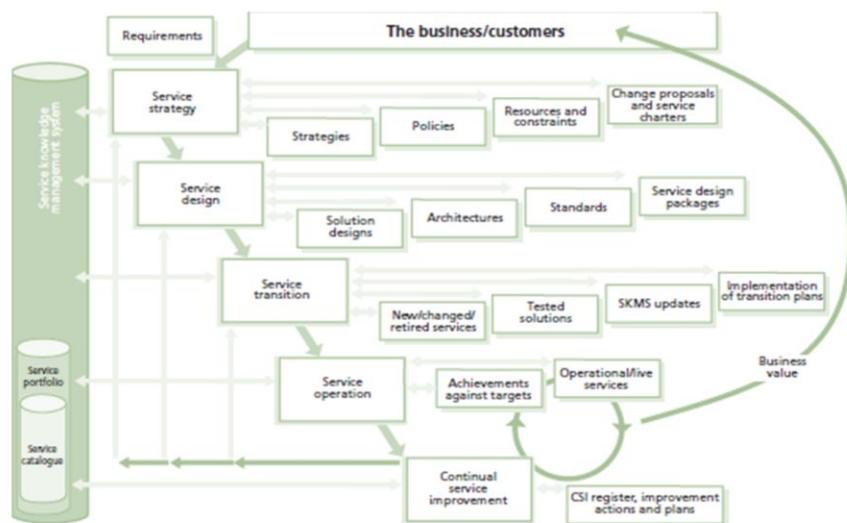
ITIL Continual Service Improvement describes best practice for achieving incremental and large-scale improvements in service quality, operational efficiency and business continuity, and for ensuring that the service portfolio continues to be aligned to business needs. Guidance is provided for linking improvement efforts and outcomes with service strategy, design, transition and operation. A closed loop feedback system, based on the Plan-Do-Check-Act (PDCA) cycle, is established. Feedback from any stage of the service lifecycle can be used to identify improvement opportunities for any other stage of the lifecycle.

Other topics in *ITIL Continual Service Improvement* include service measurement, demonstrating value with metrics, developing baselines and maturity assessments.

ITIL Processes

Lifecycle	Processes	
SS	<ul style="list-style-type: none">• Strategy management for IT services• Service portfolio management• Financial management for IT services	<ul style="list-style-type: none">• Demand management• Business relationship management
SD	<ul style="list-style-type: none">• Design coordination• Service catalogue management• IT service continuity management• Information security management	<ul style="list-style-type: none">• Capacity management• Service level management• Availability management• Supplier management
ST	<ul style="list-style-type: none">• Transition planning and support• Service asset and configuration management• Release and deployment management	<ul style="list-style-type: none">• Service validation and testing• Change evaluation• Knowledge management• Change management
SO	<ul style="list-style-type: none">• Event management• Incident management• Request fulfilment	<ul style="list-style-type: none">• Problem management• Access management
CSI	<ul style="list-style-type: none">• Seven-step improvement process	

Service Lifecycle – Linkages and Integration



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Stages of the lifecycle work together as an integrated system to support the ultimate objective of service management for business value realization.

Service strategy establishes policies and principles that provide guidance for the whole service lifecycle. The service portfolio is defined in this lifecycle stage, and new or changed services are chartered.

During the service design stage of the lifecycle, everything needed to transition and operate the new or changed service is documented in a service design package. This lifecycle stage also designs everything needed to create, transition and operate the services, including management information systems and tools, architectures, processes, measurement methods and metrics.

The activities of the service transition and service operation stages of the lifecycle are defined during service design. Service transition ensures that the requirements of the service strategy, developed in service design, are effectively realized in service operation while controlling the risks of failure and disruption.

The service operation stage of the service lifecycle carries out the activities and processes required to deliver the agreed services. During this stage of the lifecycle, the value defined in the service strategy is realized.

Continual service improvement acts in tandem with all the other lifecycle stages. All processes, activities, roles, services and technology should be measured and subjected to continual improvement.

Assets, Resources and Capabilities

- **Asset:** Any resource or capability
- **Customer asset:** Any resource or capability used by a customer to achieve a business outcome
- **Service asset:** Any resource or capability used by a service provider to deliver services to a customer
- Resources are direct inputs for production
- Capabilities represent an organization's ability to **coordinate, control and deploy** resources to produce value
- It is relatively easy to acquire resources compared to capabilities



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The service relationship between service providers and their customers revolves around the use of assets – both those of the service provider and those of the customer. Many customers use the service they receive from a service provider to build and deliver services or products of their own and then deliver them on to their own customers. In these cases, what the service provider considers to be the customer asset would be considered to be a service asset by their customer.

Without customer assets, there is no basis for defining the value of a service. The performance of customer assets is therefore a primary concern for service management.

There are two types of asset used by both service providers and customers – resources and capabilities. Organizations use them to create value in the form of goods and services. Resources are direct inputs for production. Capabilities represent an organization's ability to coordinate, control and deploy resources to produce value. Capabilities are typically experience-driven, knowledge-intensive, information-based and firmly embedded within an organization's people, systems, processes and technologies. It is relatively easy to acquire resources compared to capabilities. Service providers need to develop distinctive capabilities to retain customers with value propositions that are hard for competitors to duplicate. For example, two service providers may have similar resources such as applications, infrastructure and access to finance. Their capabilities, however, differ in terms of management systems, organization structure, processes and knowledge assets. This difference is reflected in actual performance.

Capabilities by themselves cannot produce value without adequate and appropriate resources. The productive capacity of a service provider is dependent on the resources under its control. Capabilities are used to develop, deploy and coordinate this productive capacity. For example, capabilities such as capacity management and availability management are used to manage the performance and utilization of processes, applications and infrastructure, ensuring service levels are effectively delivered.

Governance

Governance

Ensures that policies and strategy are actually implemented, and that required processes are correctly followed. Governance includes defining roles and responsibilities, measuring and reporting, and taking actions to resolve any issues identified.

(ITIL Text)

- Provides guidance on creating and maintaining value for customers through better strategy, design, transition and operation of services
- Describes best practice for achieving incremental and large-scale improvements in service quality, operational efficiency and business continuity, and for ensuring that the service portfolio continues to be aligned to business needs

Governance is the single overarching area that ties IT and the business together, and services are one way of ensuring that the organization is able to execute that governance. Governance is what defines the common directions, policies and rules that both the business and IT use to conduct business.

Many ITSM strategies fail because they try to build a structure or processes according to how they would like the organization to work instead of working within the existing governance structures.

Governance works to apply a consistently managed approach at all levels of the organization – first by ensuring a clear strategy is set, then by defining the policies whereby the strategy will be achieved. The policies also define boundaries, or what the organization may not do as part of its operations.

Governance needs to be able to evaluate, direct and monitor the strategy, policies and plans.