ITIL®

Best Management Practice

# ITIL® Service Design

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# ITIL® Service Design

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# Foreword

Back in the 1980s no one truly understood IT service management (ITSM), although it was clear that it was a concept that needed to be explored. Hence a UK government initiative was instigated and ITIL® was born. Over the years, ITIL has evolved and, arguably, is now the most widely adopted approach in ITSM.

It is globally recognized as the best-practice framework. ITIL's universal appeal is that it continues to provide a set of processes and procedures that are efficient, reliable and adaptable to organizations of all sizes, enabling them to improve their own service provision.

In the modern world the concept of having a strategy to drive the business forward with adequate planning and design transitioning into day-to-day operation is compelling. Once the business has decided the IT service strategy, it is necessary to design services that are capable of meeting the agreed requirements. Knowing the direction that you are travelling is of vital importance but meaningless unless you confirm (design) the mode of travel. This publication shows you how to ensure that the strategic vision set out in service strategy can be achieved and explains the processes and procedures that will enable you to do this.

The principles contained within *ITIL Service Design* have been proven countless times in the real world. We encourage feedback from business and the ITSM community, as well as other experts in the field, to ensure that ITIL remains relevant. This practice of continual service improvement is one of the cornerstones of the ITIL framework and the fruits of this labour are here before you in this updated edition.

There is an associated qualification scheme so that individuals can demonstrate their understanding and application of the ITIL practices. So whether you are starting out or continuing along the ITIL path, you are joining a legion of individuals and organizations who have recognized the benefits of good-quality service and have a genuine resolve to improve their service level provision.

ITIL is not a panacea to all problems. It is, however, a tried and tested approach that has been proven to work.

I wish you every success in your service management journey.

Frances Scarff

*Head of Best Management Practice*
*Cabinet Office*

# Preface

*'Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for.'* Peter Drucker

This is the second book in the series of five ITIL core publications containing advice and guidance around the activities and processes associated with the five stages of the service lifecycle. The primary purpose of the service design stage of the service lifecycle is to design service solutions that meet the current and future needs of the business. Therefore the accurate identification, documentation and agreement of customer and business requirements are fundamental to the production of good service solution designs.

Service design takes the outputs from service strategy, the preceding stage of the service lifecycle, and uses them to ensure that the solution designs produced are consistent with the overall IT service provider strategy. The trigger for this design activity is the production of a change proposal for a new business requirement by the activities within the service strategy stage of the lifecycle. Service design takes this new business requirement and, using the five aspects of design, creates services and their supporting practices that meet business demands for functionality, security, performance, reliability and flexibility. Service design produces a service design package (SDP) that enables the build, test and release activities of service transition, and the operation, support and improvement activities of service operation and continual service improvement to occur.

Services are assets that deliver value to the business, the customers and their assets as they are used within their business processes. How well services are designed with the customers' needs and assets in mind will predict the value that can be derived from the delivery and operation of the services. In the absence of service design, services will evolve informally, often without taking full account of the business needs and overall view.

All IT service providers, whether internal or external, are part of a value network and fill a critical role in the service lifecycle by integrating best practices for service design and the service lifecycle into innovative services for the business customer. *ITIL Service Design* provides the knowledge and skills required to assemble the best combination of service assets to produce effective, measurable, scalable and innovative services that can be used along the path towards service excellence.

Any IT service provider who is expected to deliver quality to the business customer must have the capability to design services that meet the customer's expectations, and then go on to exceed those expectations. The guidance in this publication will help organizations to do just that.

## Contact information

Full details of the range of material published under the ITIL banner can be found at:

www.best-management-practice.com/IT-Service-Management-ITIL/

If you would like to inform us of any changes that may be required to this publication, please log them at:

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## 2011 EDITION

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For more information on the ATO sub-group see: www.itil-officialsite.com/News/ATOSubGroupAppointed.aspx

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### Wider team

#### *Change advisory board*

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## 2007 EDITION

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Thanks are still due to those who contributed to the 2007 edition of *Service Design*, upon which this updated edition is based.

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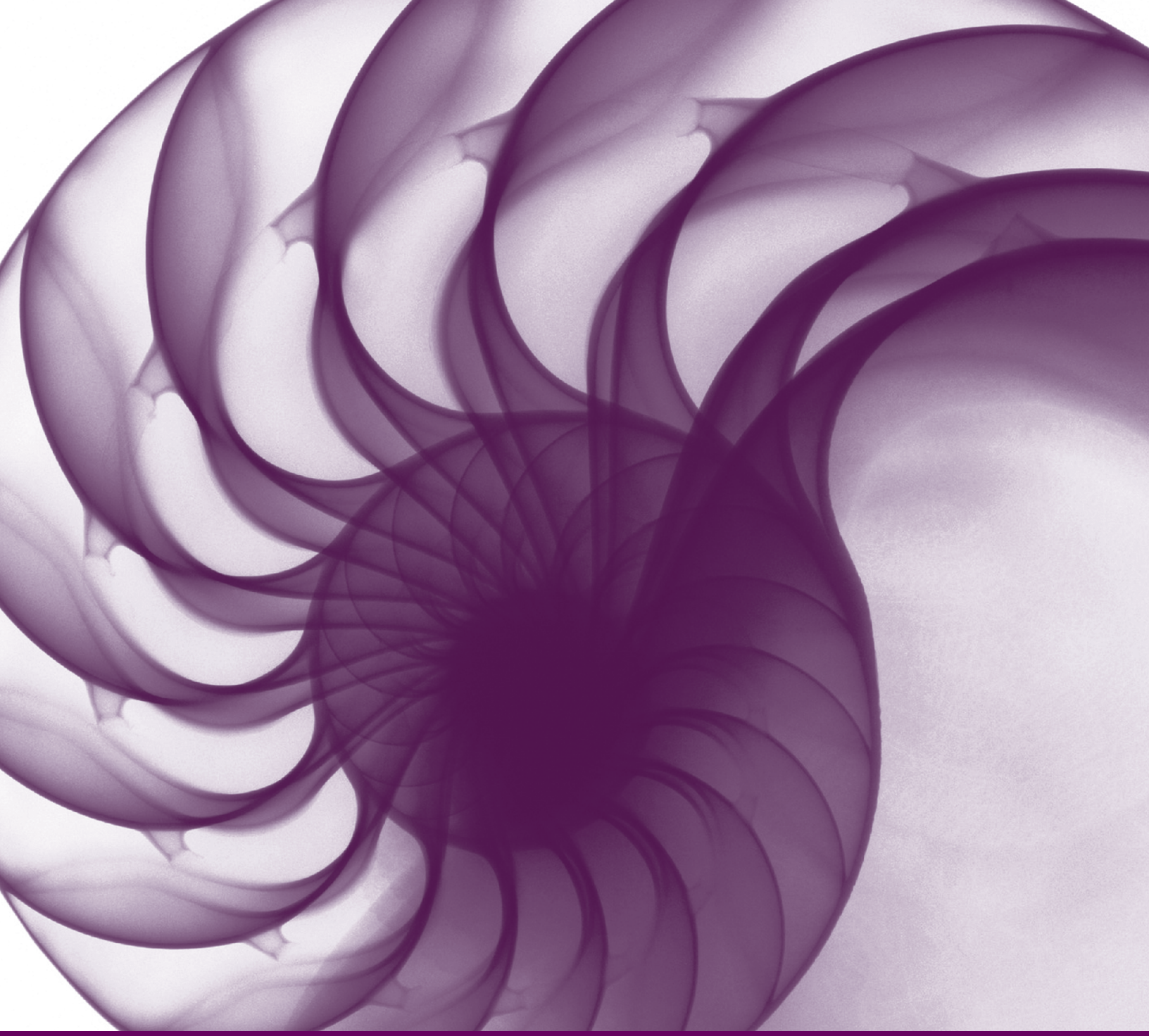
| Vernon Lloyd (Fox IT) | Author |
| Colin Rudd (IT Enterprise Management Services Ltd (ITEMS)) | Author |

All names and organizations were correct at publication in 2007.

For a full list of all those who contributed to the 2007 and 2011 editions of *Service Strategy, Service Design, Service Transition, Service Operation* and *Continual Service Improvement*, please go to

www.itil-officialsite.com/Publications/PublicationAcknowledgements.aspx



# 1 Introduction

# 1 Introduction

ITIL is part of a suite of best-practice publications for IT service management (ITSM).[1] ITIL provides guidance to service providers on the provision of quality IT services, and on the processes, functions and other capabilities needed to support them. ITIL is used by many hundreds of organizations around the world and offers best-practice guidance applicable to all types of organization that provide services. ITIL is not a standard that has to be followed; it is guidance that should be read and understood, and used to create value for the service provider and its customers. Organizations are encouraged to adopt ITIL best practices and to adapt them to work in their specific environments in ways that meet their needs.

ITIL is the most widely recognized framework for ITSM in the world. In the 20 years since it was created, ITIL has evolved and changed its breadth and depth as technologies and business practices have developed. ISO/IEC 20000 provides a formal and universal standard for organizations seeking to have their service management capabilities audited and certified. While ISO/IEC 20000 is a standard to be achieved and maintained, ITIL offers a body of knowledge useful for achieving the standard.

In 2007, the second major refresh of ITIL was published in response to significant advancements in technology and emerging challenges for IT service providers. New models and architectures such as outsourcing, shared services, utility computing, cloud computing, virtualization, web services and mobile commerce have become widespread within IT. The process-based approach of ITIL was augmented with the service lifecycle to address these additional service management challenges. In 2011, as part of its commitment to continual improvement, the Cabinet Office published this update to improve consistency across the core publications.

The ITIL framework is based on the five stages of the service lifecycle as shown in Figure 1.1, with a core publication providing best-practice guidance for each stage. This guidance includes key principles, required processes and activities, organization and roles, technology, associated challenges, critical success factors and risks. The service lifecycle uses a hub-and-spoke design, with service strategy at the hub, and service design, transition and operation as the revolving lifecycle stages or 'spokes'. Continual service improvement surrounds and supports all stages of the service lifecycle. Each stage of the lifecycle exerts influence on the others and relies on them for inputs and feedback. In this way, a constant set of checks and balances throughout the service lifecycle ensures that as business demand changes with business need, the services can adapt and respond effectively.

In addition to the core publications, there is also a complementary set of ITIL publications providing guidance specific to industry sectors, organization types, operating models and technology architectures.

## 1.1 OVERVIEW

*ITIL Service Design* provides best-practice guidance for the service design stage of the ITIL service lifecycle. Although this publication can be read

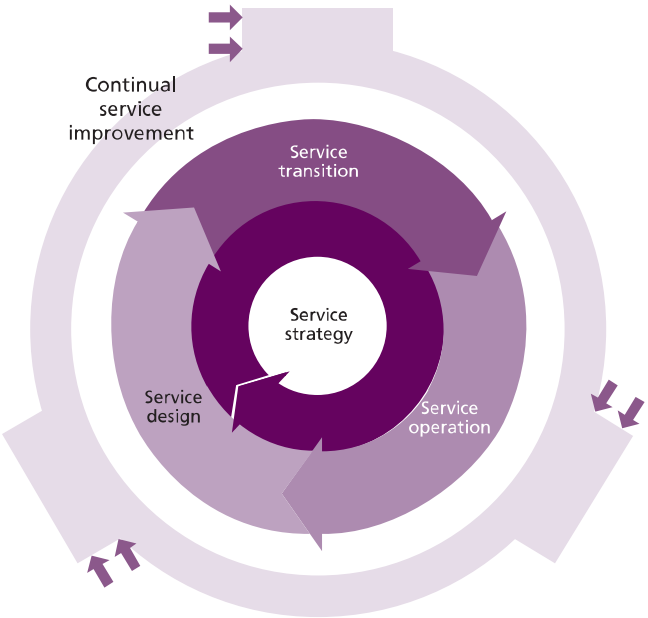



***Figure 1.1 The ITIL service lifecycle***

1 ITSM and other concepts from this chapter are described in more detail in Chapter 2.

in isolation, it is recommended that it is used in conjunction with the other core ITIL publications.

### 1.1.1 Purpose and objective of service design

The purpose of the service design stage of the lifecycle is to design IT services, together with the governing IT practices, processes and policies, to realize the service provider's strategy and to facilitate the introduction of these services into supported environments ensuring quality service delivery, customer satisfaction and cost-effective service provision.

The objective of service design is to design IT services so effectively that minimal improvement during their lifecycle will be required. However, continual improvement should be embedded in all service design activities to ensure that the solutions and designs become even more effective over time, and to identify changing trends in the business that may offer improvement opportunities. Service design activities can be periodic or exception-based when they may be triggered by a specific business need or event.

### 1.1.2 Scope

*ITIL Service Design* provides guidance for the design of appropriate and innovative IT services to meet current and future agreed business requirements. It describes the principles of service design and looks at identifying, defining and aligning the IT solution with the business requirement. It also introduces the concept of the service design package and looks at selecting the appropriate service design model. This publication covers the methods, practices and tools to achieve excellence in service design. It discusses the fundamentals of the design processes and attends to what are called the 'five aspects of service design' (see Chapter 3).

*ITIL Service Design* enforces the principle that the initial service design should be driven by a number of factors, including the functional requirements, the requirements within service level agreements (SLAs), the business benefits and the overall design constraints.

The processes considered important to successful service design are design coordination, service catalogue management, service level management, availability management, capacity management, IT service continuity management, information security management and supplier management. They are described in detail in Chapter 4, although it should be noted that almost all of these processes are also active throughout the other stages of the service lifecycle. All processes within the service lifecycle must be linked closely together for managing, designing, supporting and maintaining the services, the IT infrastructure, the environment, the applications and the data. Other processes are described in detail in the other core ITIL publications. The interfaces between processes need to be clearly defined when designing a service or improving or implementing a process.

The appendices described at the end of this chapter give examples of important service design documents and templates such as the service design package and SLAs.

### 1.1.3 Usage

*ITIL Service Design* provides access to proven best practice based on the skill and knowledge of experienced industry practitioners in adopting a standardized and controlled approach to service management. Although this publication can be used and applied in isolation, it is recommended that it is used in conjunction with the other core ITIL publications. All of the core publications need to be read to fully appreciate and understand the overall lifecycle of services and IT service management.

### 1.1.4 Value to business

Selecting and adopting the best practice as recommended in this publication will assist organizations in delivering significant benefits. With good service design, it is possible to deliver quality, cost-effective services and to ensure that the business requirements are being met consistently.

Adopting and implementing standard and consistent approaches for service design will:

- **Reduce total cost of ownership (TCO)** Cost of ownership can only be minimized if all aspects of services, processes and technology are designed properly and implemented against the design.
- **Improve quality of service** Both service and operational quality will be enhanced through services that are better designed to meet the required outcomes of the customer.

- **Improve consistency of service** This will be achieved by designing services within the corporate strategy, architectures and constraints.
- **Ease the implementation of new or changed services** Integrated and full service designs and the production of comprehensive service design packages will support effective and efficient transitions.
- **Improve service alignment** Involvement of service design from the conception of the service will ensure that new or changed services match business needs, with services designed to meet service level requirements.
- **Improve service performance** Performance will be enhanced if services are designed to meet specific performance criteria and if capacity, availability, IT service continuity and financial plans are recognized and incorporated.
- **Improve IT governance** By building controls into designs, service design can contribute towards the effective governance of IT.
- **Improve effectiveness of service management and IT processes** Processes will be designed with optimal quality and cost effectiveness.
- **Improve information and decision-making** Comprehensive and effective measurements and metrics will enable better decision-making and continual improvement of services and service management practices throughout the service lifecycle.
- **Improve alignment with customer values and strategies** For organizations with commitments to concepts such as green IT or that establish strategies such as the use of cloud technologies, service design will ensure that all areas of services and service management are aligned with these values and strategies.

### 1.1.5 Target audience

*ITIL Service Design* is relevant to organizations involved in the development, delivery or support of services, including:

- Service providers, both internal and external
- Organizations that aim to improve services through the effective application of service management principles and a service lifecycle approach
- Organizations that require a consistent managed approach across all service providers in a supply chain or value network
- Organizations that are going out to tender for their services.

The publication is also relevant to any professional involved in the management of services, particularly:

- IT architects
- IT managers and practitioners
- IT service owners
- Business relationship managers.

## 1.2 CONTEXT

The context of this publication is the ITIL service lifecycle as shown in Figure 1.1.

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. This serves to protect investments and provide the necessary basis for measurement, learning and improvement. The introductory guide, *Introduction to the ITIL Service Lifecycle*, provides an overview of the lifecycle stages described in the ITIL core.

ITIL guidance can be adapted to support various business environments and organizational strategies. Complementary ITIL publications provide flexibility to implement the core in a diverse range of environments. Practitioners can select complementary publications as needed to provide traction for the ITIL core in a given context, in much the same way as tyres are selected based on the type of vehicle, purpose and road conditions. This is to increase the durability and portability of knowledge assets and to protect investments in service management capabilities.

### 1.2.1 Service strategy

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.

Organizations already practising ITIL can use *ITIL Service Strategy* to guide a strategic review of their ITIL-based service management capabilities and to improve the alignment between those capabilities and their business strategies. *ITIL Service Strategy* will encourage readers to stop and think about why something is to be done before thinking of how.

### 1.2.2 Service design

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* (this publication) 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.

### 1.2.3 Service transition

*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.

### 1.2.4 Service operation

*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.

### 1.2.5 Continual service improvement

*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.

## 1.3 ITIL IN RELATION TO OTHER PUBLICATIONS IN THE BEST MANAGEMENT PRACTICE PORTFOLIO

ITIL is part of a portfolio of best-practice publications (known collectively as Best Management Practice or BMP) aimed at helping organizations and individuals manage projects, programmes and services consistently and effectively (see Figure 1.2). ITIL can be used in harmony with other BMP products, and international or internal organization standards. Where appropriate, BMP guidance is supported by a qualification scheme and accredited training and consultancy services. All BMP guidance is intended to be tailored for use by individual organizations.

BMP publications include:

- ***Management of Portfolios*** **(MoP)**™ Portfolio management concerns the twin issues of how to do the 'right' projects and programmes in the context of the organization's strategic objectives, and how to do them 'correctly' in terms of achieving delivery and benefits at a collective level. MoP encompasses consideration of the principles upon which effective portfolio management is based; the key practices in the portfolio definition and delivery cycles, including examples of how they have been applied in real life; and guidance on how to implement portfolio management and sustain progress in a wide variety of organizations. Office of Government Commerce (2011). *Management of Portfolios*. TSO, London.
- ***Management of Risk*** **(M_o_R®)** M_o_R offers an effective framework for taking informed decisions about the risks that affect performance objectives. The framework allows organizations to assess risk accurately

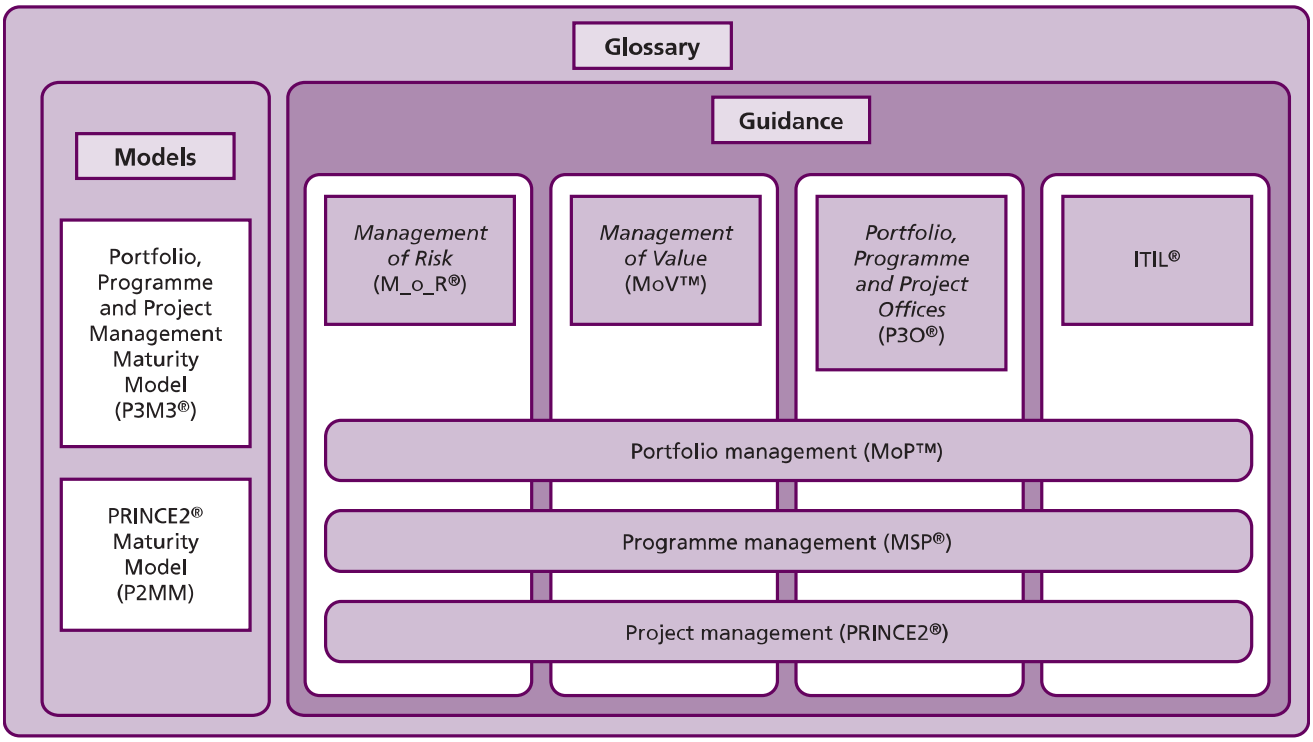



*Figure 1.2 ITIL's relationship with other Best Management Practice guides*

(selecting the correct responses to threats and opportunities created by uncertainty) and thereby improve their service delivery.

Office of Government Commerce (2010). *Management of Risk: Guidance for Practitioners*. TSO, London.

- ***Management of Value* (MoV™)** MoV provides a cross-sector and universally applicable guide on how to maximize value in a way that takes account of organizations' priorities, differing stakeholders' needs and, at the same time, uses resources as efficiently and effectively as possible. It will help organizations to put in place effective methods to deliver enhanced value across their portfolio, programmes, projects and operational activities to meet the challenges of ever-more competitive and resource-constrained environments.

  Office of Government Commerce (2010). *Management of Value*. TSO, London.

- ***Managing Successful Programmes* (MSP®)** MSP provides a framework to enable the achievement of high-quality change outcomes and benefits that fundamentally affect the way in which organizations work. One of the core themes in MSP is that a programme must add more value than that provided by the sum of its constituent project and major activities.

  Cabinet Office (2011). *Managing Successful Programmes*. TSO, London.

- ***Managing Successful Projects with PRINCE2®*** PRINCE2 (PRojects IN Controlled Environments, V2) is a structured method to help effective project management via clearly defined products. Key themes that feature throughout PRINCE2 are the dependence on a viable business case confirming the delivery of measurable benefits that are aligned to an organization's objectives and strategy, while ensuring the management of risks, costs and quality.

  Office of Government Commerce (2009). *Managing Successful Projects with PRINCE2*. TSO, London.

- ***Portfolio, Programme and Project Offices* (P3O®)** P3O provides universally applicable guidance, including principles, processes and techniques, to successfully establish, develop and maintain appropriate support structures. These structures will facilitate delivery of

business objectives (portfolios), programmes and projects within time, cost, quality and other organizational constraints.

Office of Government Commerce (2008). *Portfolio, Programme and Project Offices*. TSO, London.

## 1.4 WHY IS ITIL SO SUCCESSFUL?

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.

ITIL is successful because it describes practices that enable organizations to deliver benefits, return on investment and sustained success. ITIL is adopted by organizations to enable them to:

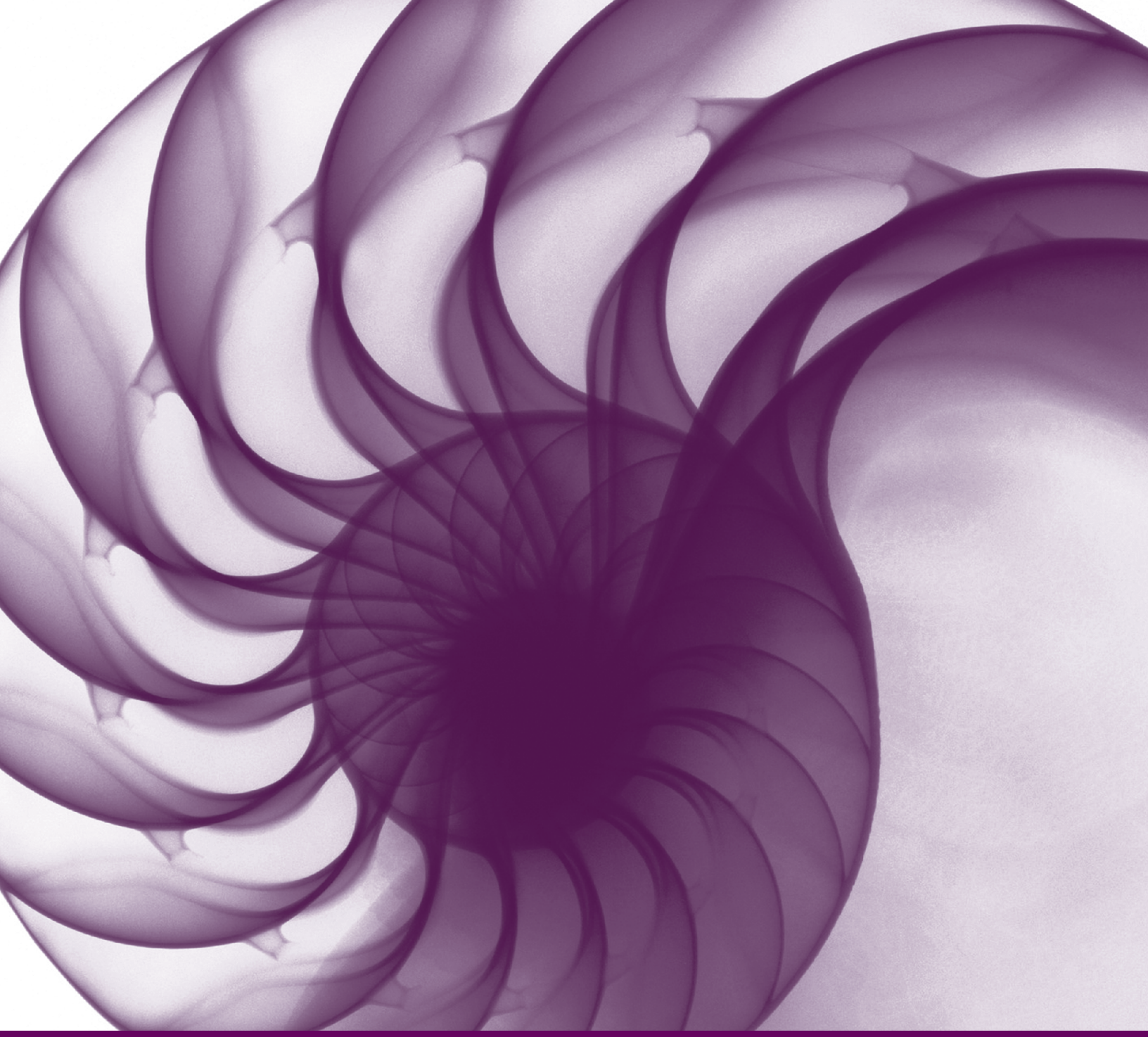
- Deliver value for customers through services
- Integrate the strategy for services with the business strategy and customer needs
- Measure, monitor and optimize IT services and service provider performance
- Manage the IT investment and budget
- Manage risk
- Manage knowledge
- Manage capabilities 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.

## 1.5 CHAPTER SUMMARY

*ITIL Service Design* comprises:

- Chapter 2 Service management as a practice
  This chapter explains the concepts of service management and services, and describes how these can be used to create value. It also summarizes a number of generic ITIL concepts that the rest of the publication depends on.
- Chapter 3 Service design principles
  This chapter describes some of the key principles of service design that will enable service providers to plan and implement best practice in service design. These principles are the same irrespective of the organization; however, the approach may need to be tailored to circumstances, including the size of the organization, geographic distribution, culture and available resources. It concludes with a table showing the major inputs and outputs for the service design lifecycle stage.
- Chapter 4 Service design processes
  Chapter 4 sets out the processes and activities on which effective service design depends and how they integrate with the other stages of the lifecycle.
- Chapter 5 Service design technology-related activities
  Chapter 5 considers the technology-related activities of requirement engineering and the development of technology architectures.
- Chapter 6 Organizing for service design
  This chapter identifies the organizational roles and responsibilities that should be considered to manage the service design lifecycle stage and processes. These roles are provided as guidelines and can be combined to fit into a variety of organizational structures. Examples of organizational structures are also provided.

- Chapter 7 Technology considerations
  ITIL service management practices gain momentum when the right type of technical automation is applied. This chapter provides recommendations for the use of technology in service design and the basic requirements a service provider will need to consider when choosing service management tools.
- Chapter 8 Implementing service design
  For organizations new to ITIL, or those wishing to improve their maturity and service capability, this chapter outlines effective ways to implement the service design lifecycle stage.
- Chapter 9 Challenges, risks and critical success factors
  It is important for any organization to understand the challenges, risks and critical success factors that could influence their success. This chapter discusses typical examples of these for the service design lifecycle stage.
- Appendices A–K
  These appendices provide working templates and examples of how the practices can be applied. They are provided to help organizations capitalize on industry experience and expertise already in use. Each can be adapted within any organizational context.
  - Appendix A The service design package
  - Appendix B Service acceptance criteria
  - Appendix C Process documentation template
    Appendix D Design and planning documents and their contents
  - Appendix E Environmental architectures and standards
  - Appendix F Sample service level agreement and operational level agreement
  - Appendix G Service catalogue example
  - Appendix H The service management process maturity framework
  - Appendix I Example of the contents of a statement of requirements and/or invitation to tender
  - Appendix J Typical contents of a capacity plan
  - Appendix K Typical contents of a recovery plan
- Appendix L Procurement documents
  This appendix lists and briefly describes types of document that are frequently utilized in the process of procuring services from an external supplier.
- Appendix M Risk assessment and management
  This appendix contains basic information about several commonly used approaches to the assessment and management of risk.
- Appendix N Related guidance
  This contains a list of some of the many external methods, practices and frameworks that align well with ITIL best practice. Notes are provided on how they integrate into the ITIL service lifecycle, and when and how they are useful.
- Appendix O Examples of inputs and outputs across the service lifecycle
  This appendix identifies some of the major inputs and outputs between each stage of the service lifecycle.
- Abbreviations and glossary
  This contains a list of abbreviations and a selected glossary of terms.



# 2

# Service management as a practice

# 2 Service management as a practice

## 2.1 SERVICES AND SERVICE MANAGEMENT

### 2.1.1 Services

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. 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.

The preceding paragraph is not just a definition, as it is a recurring pattern found in a wide range of services. Patterns are useful for managing complexity, costs, flexibility and variety. They are generic structures useful to make an idea applicable in a wide range of environments and situations. In each instance the pattern is applied with variations that make the idea effective, economical or simply useful in that particular case.

**Definition: 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.

An outcome-based definition of service moves IT organizations beyond business–IT alignment towards business–IT integration. Internal dialogue and discussion on the meaning of services is an elementary step towards alignment and integration with a customer's business (Figure 2.1). 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.

**Definitions**

*Service*: A means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.

*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. A customer-facing IT service directly supports the business processes of one or more customers and its service level targets should be defined in a service level agreement. Other IT services, called supporting services, are not directly used by the business but are required by the service provider to deliver customer-facing services.

Customer satisfaction is also 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.

Services can be discussed in terms of how they relate to one another and their customers, and 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.

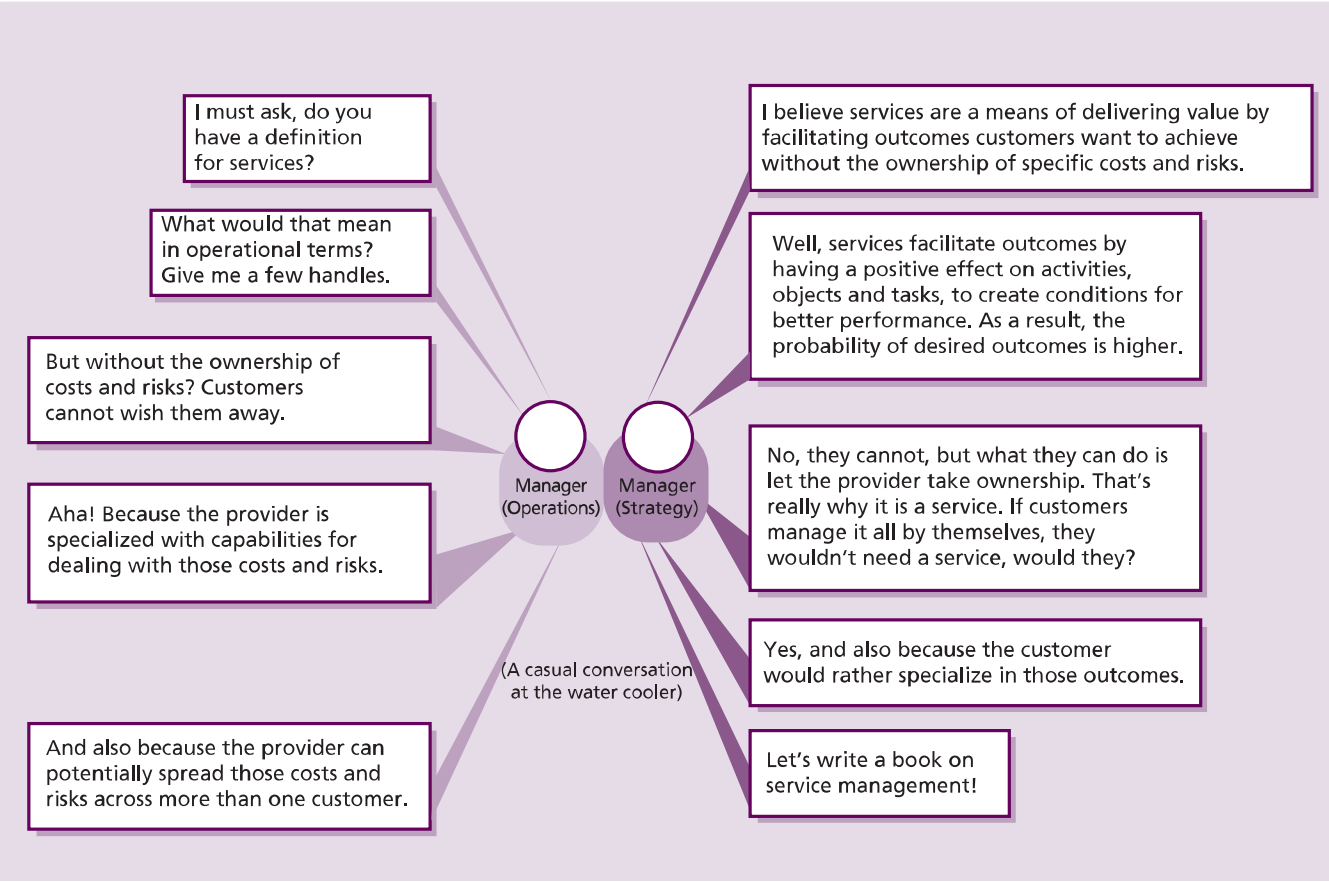



***Figure 2.1 Conversation about the definition and meaning of services***

*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).

Services may be as simple as allowing a user to complete a single transaction, but most services are complex. They consist of a range of deliverables and functionality. If each individual aspect of these complex services were defined independently, the service provider would soon find it impossible to track and record all services.

Most service providers will follow a strategy where they can deliver a set of more generic services to a broad range of customers, thus achieving economies of scale and competing on the basis of price and a certain amount of flexibility. One way of achieving this is by using service packages. A service package is a collection of two or more services that have been combined to offer a solution to a specific type of customer need or to underpin specific business outcomes. A service package can consist of a combination of core services, enabling services and enhancing services.

Where a service or service package needs to be differentiated for different types of customer, one or more components of the package can be changed, or offered at different levels of utility and warranty, to create service options. These different service options can then be offered to customers and are sometimes called service level packages.

### 2.1.2 Service management

When we turn on a water tap, we expect to see water flow from it. When we turn on a light switch, we expect to see light fill the room. Not so many years ago, these very basic things were not as reliable as they are today. We know instinctively that the advances in technology have made them reliable enough to be considered a utility. But it isn't just the technology that makes the services reliable. It is how they are managed.

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.

**Definitions**

*Service management:* A set of specialized organizational capabilities for providing value to customers in the form of services.

*Service provider:* An organization supplying services to one or more internal or external customers.

Organizational capabilities are shaped by the challenges they are expected to overcome. An example of this is provided by Toyota in the 1950s when it developed unique capabilities to overcome the challenge of smaller scale and financial capital compared to its American rivals. Toyota developed new capabilities in production engineering, operations management and managing suppliers to compensate for its inability to afford large inventories, make components, produce raw materials or own the companies that produced them (Magretta, 2002).[2]

Service management capabilities are similarly 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 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

2 Magretta, J. (2002). *What Management Is: How it Works and Why it's Everyone's Business*. The Free Press, New York.

organizations. This in turn has strengthened the practice of service management while at the same time imposed greater challenges.

### 2.1.3 IT service management

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.

**Definitions**

*IT service management (ITSM)*: 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.

*IT service provider*: A service provider that provides IT services to internal or external 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.

### 2.1.4 Service providers

There are three main types of service provider. While most aspects of service management apply equally to all types of service provider, other 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.

Many IT organizations who traditionally provide services to internal customers find that they are dealing directly with external users because of the online services that they provide. *ITIL Service Strategy* provides guidance on how the IT organization interacts with these users, and who owns and manages the relationship with them.

### 2.1.5 Stakeholders in service management

Stakeholders have an interest in an organization, project or service etc. and may be interested in the activities, targets, resources or deliverables from service management. Examples include organizations, service providers, customers, consumers, users, partners, employees, shareholders, owners and suppliers. The term 'organization' is used to define a company, legal entity or other institution. It is also used to refer to any entity that has people, resources and budgets – for example, a project or business.

Within the service provider organization there are many different stakeholders including the functions, groups and teams that deliver the services. There are also many stakeholders external to the service provider organization, for example:

- **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. This term is also sometimes used informally to mean user – for example, 'This is a customer-focused organization.'
- **Users** Those who use the service on a day-to-day basis. Users are distinct from customers, as some customers do not use the IT service directly.
- **Suppliers** Third parties responsible for supplying goods or services that are required to deliver IT services. Examples of suppliers include commodity hardware and software vendors, network and telecom providers, and outsourcing organizations.

There is a difference between customers who work in the same organization as the IT service provider, and customers who work for other organizations. They are distinguished as follows:

- **Internal customers** These are customers who work for the same business as the IT 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 chief information officer both report to the chief executive officer. If IT charges for its services, the money paid is an internal transaction in the organization's accounting system, not real revenue.
- **External customers** These are customers who work for a different business from the IT service provider. External customers typically purchase services from the service provider by means of a legally binding contract or agreement.

### 2.1.6 Utility and warranty

The value of a service can be considered to be the level to which that service meets a customer's expectations. It is often measured by how much the customer is willing to pay for the service, rather than the cost to the service provider of providing the service or any other intrinsic attribute of the service itself.

Unlike products, services do not have much intrinsic value. The value of a service comes from what it enables someone to do. The value of a service is not determined by the provider, but by the person who receives it – because they decide what they will do with the service, and what type of return they will achieve by using the service. Services contribute value to an organization only when their value is perceived to be higher than the cost of obtaining the service.

From the customer's perspective, value consists of achieving business objectives. The value of a service is created by combining two primary elements: utility (fitness for purpose) and warranty (fitness for use). These two elements work together to achieve the desired outcomes upon which the customer and the business base their perceptions of a service.

Utility is the functionality offered by a product or service to meet a particular need. Utility can be summarized as 'what the service does', and can be used to determine whether a service is able to meet its required outcomes, or is 'fit for purpose'. Utility refers to those aspects of a service that contribute to tasks associated with

achieving outcomes. For example, a service that enables a business unit to process orders should allow sales people to access customer details, stock availability, shipping information etc. Any aspect of the service that improves the ability of sales people to improve the performance of the task of processing sales orders would be considered utility. Utility can therefore represent any attribute of a service that removes, or reduces the effect of, constraints on the performance of a task.

Warranty is an assurance that a product or service will meet its agreed requirements. This may be a formal agreement such as a service level agreement or contract, or a marketing message or brand image. Warranty refers to the ability of a service to be available when needed, to provide the required capacity, and to provide the required reliability in terms of continuity and security. Warranty can be summarized as 'how the service is delivered', and can be used to determine whether a service is 'fit for use'. For example, any aspect of the service that increases the availability or speed of the service would be considered warranty. Warranty can therefore represent any attribute of a service that increases the potential of the business to be able to perform a task. Warranty refers to any means by which utility is made available to the users.

Utility is *what* the service does, and warranty is *how* it is delivered.

Customers cannot benefit from something that is fit for purpose but not fit for use, and vice versa. The value of a service is therefore only delivered when both utility and warranty are designed and delivered. Figure 2.2 illustrates the logic that a service has to have both utility and warranty to create value. Utility is used to improve the performance of the tasks required to achieve an outcome, or to remove constraints that prevent the task from being performed adequately (or both). Warranty requires the service to be available, continuous and secure and to have sufficient capacity for the service to perform at the required level. If the service is both fit for purpose and fit for use, it will create value.

It should be noted that the elements of warranty in Figure 2.2 are not exclusive. It is possible to define other components of warranty, such as usability, which refers to how easy it is for the user to access and use the features of the service to achieve the desired outcomes.

The warranty aspect of the service needs to be designed at the same time as the utility aspect in order to deliver the required value to the business. Attempts to design warranty aspects after a service has been deployed can be expensive and disruptive.

Information about the desired business outcomes, opportunities, customers, utility and warranty of the service is used to develop the definition of a service. Using an outcome-based definition helps to ensure that managers plan and execute all aspects of service management from the perspective of what is valuable to the customer.

### 2.1.7 Best practices in the public domain

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

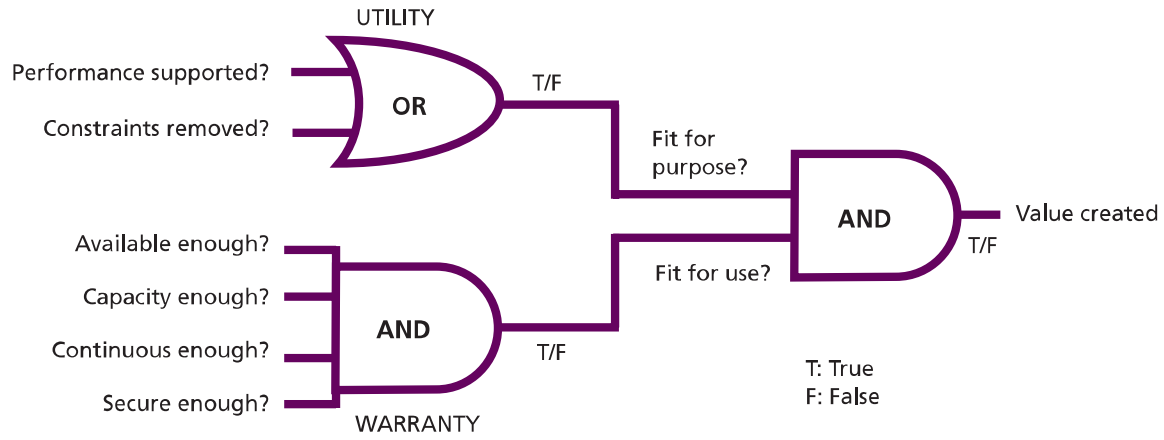



*Figure 2.2 Logic of value creation through services*

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 (Figure 2.3). ITIL is the most widely recognized and trusted 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

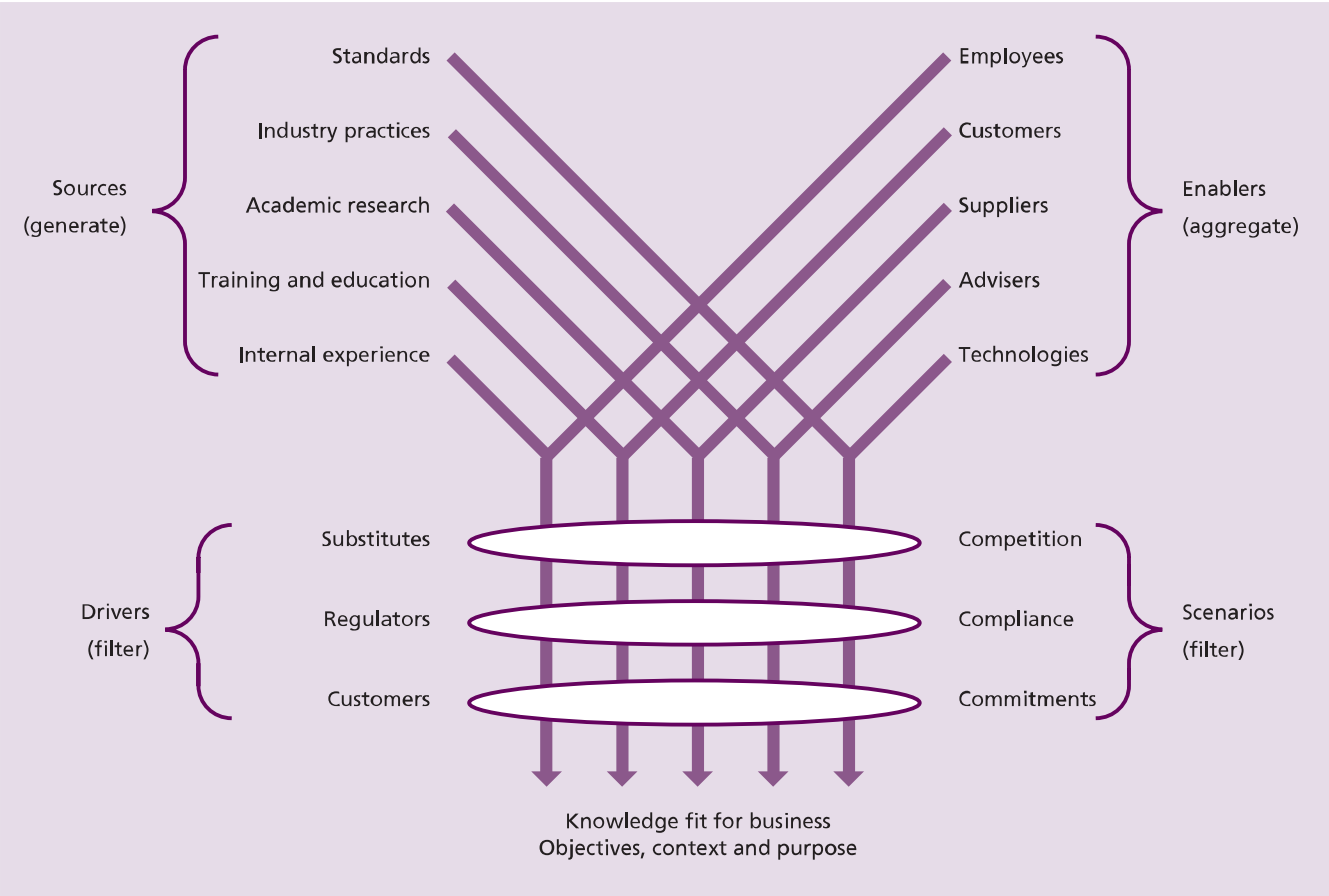



*Figure 2.3 Sources of service management best practice*

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. Further information on best practice in the public domain is provided in Appendix N.

## 2.2 BASIC CONCEPTS

### 2.2.1 Assets, resources and capabilities

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. Each relationship involves an interaction between the assets of each party.

Many customers use the service they receive 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.

**Definitions**

*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.

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 (see Figure 2.4 for examples of capabilities and resources).

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.

### 2.2.2 Processes

**Definition: process**

A process is 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.

Processes define actions, dependencies and sequence. Well-defined processes can improve productivity within and across organizations and functions. Process characteristics include:

- **Measurability** We are able to measure the process in a relevant manner. It is performance-driven. Managers want to measure cost, quality and other variables while practitioners are concerned with duration and productivity.
- **Specific results** The reason a process exists is to deliver a specific result. This result must be individually identifiable and countable.

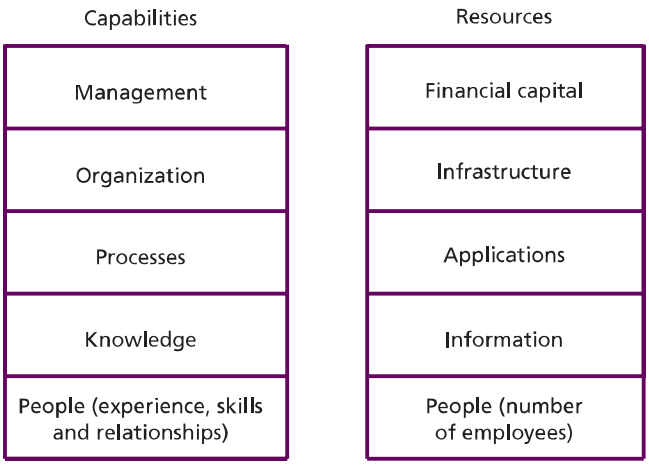



*Figure 2.4 Examples of capabilities and resources*

- **Customers** Every process delivers its primary results to a customer or stakeholder. Customers may be internal or external to the organization, but the process must meet their expectations.
- **Responsiveness to specific triggers** While a process may be ongoing or iterative, it should be traceable to a specific trigger.

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.

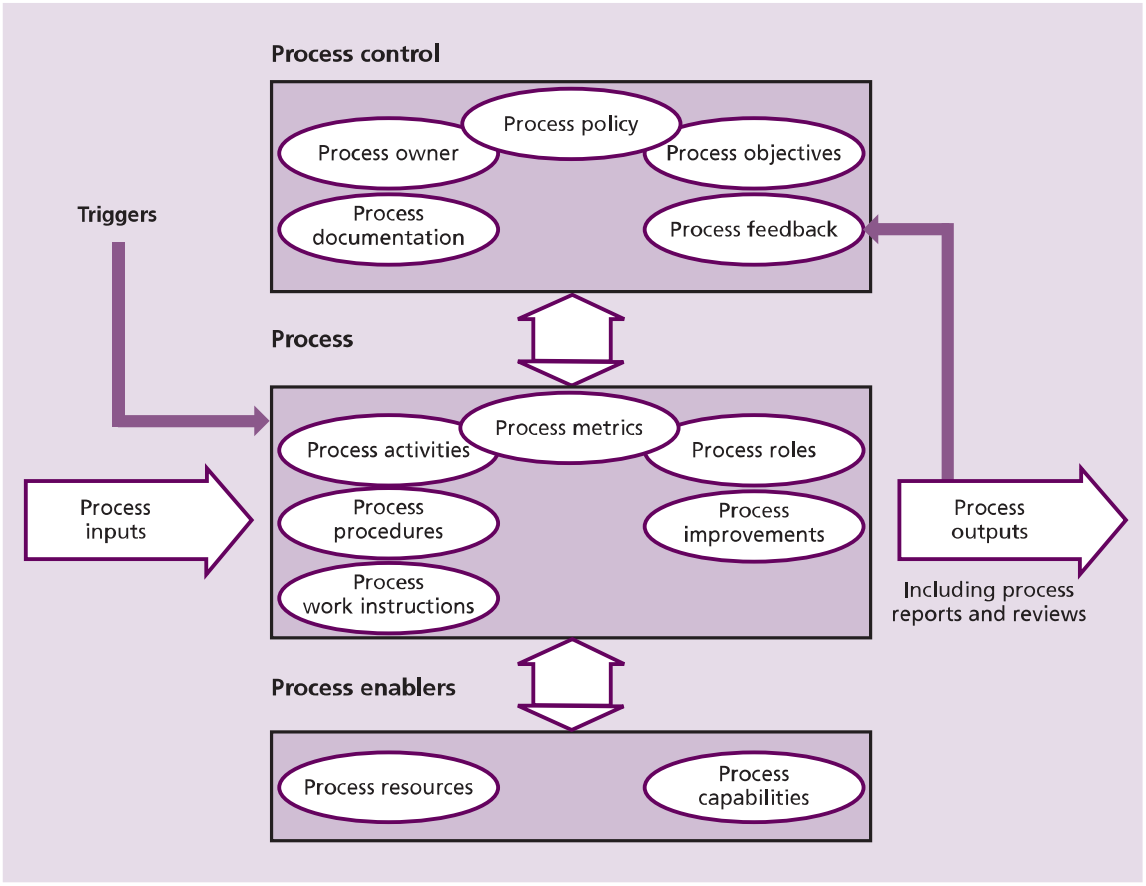



*Figure 2.5 Process model*

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 as illustrated in Figure 2.5. Process analysis, results and metrics should be incorporated in regular management reports and process improvements.

### 2.2.3 Organizing for service management

There is no single best way to organize, and best practices described in ITIL need to be tailored to suit individual organizations and situations. Any changes made will need to take into account resource constraints and the size, nature and needs of the business and customers. The starting point for organizational design is strategy. Organizational development for service management is described in more detail in *ITIL Service Strategy* Chapter 6.

#### *2.2.3.1 Functions*

A function is a team or group of people and the tools or other resources they use to carry out one or more processes or activities. In larger organizations, a function may be broken out and performed by several departments, teams and groups, or it may be embodied within a single organizational unit (e.g. the service desk). In smaller organizations, one person or group can perform multiple functions – for example, a technical management department could also incorporate 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.

*ITIL Service Operation* describes the following functions in detail:

- **Service desk** The single point of contact for users when there is a service disruption, for service requests, or even for some categories of request for change. The service desk provides a point of communication to users and a point of coordination for several IT groups and processes.
- **Technical management** Provides detailed technical skills and resources needed to support the ongoing operation of IT services and the management of the IT infrastructure. Technical management also plays an important role in the design, testing, release and improvement of IT services.

- **IT operations management** Executes the daily operational activities needed to manage IT services and the supporting IT infrastructure. This is done according to the performance standards defined during service design. IT operations management has two sub-functions that are generally organizationally distinct. These are IT operations control and facilities management.
- **Application management** Is responsible for managing applications throughout their lifecycle. The application management function supports and maintains operational applications and also plays an important role in the design, testing and improvement of applications that form part of IT services.

The other core ITIL publications do not define any functions in detail, but they do rely on the technical and application management functions described in *ITIL Service Operation*. Technical and application management provide the technical resources and expertise to manage the whole service lifecycle, and practitioner roles within a particular lifecycle stage may be performed by members of these functions.

#### 2.2.3.2 Roles

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.

**Definition: 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.

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.

See Chapter 6 for more details about the roles and responsibilities described in *ITIL Service Design*.

#### 2.2.3.3 Organizational culture and behaviour

Organizational culture is the set of shared values and norms that control the service provider's interactions with all stakeholders, including customers, users, suppliers, internal staff etc. An organization's values are desired modes of behaviour that affect its culture. Examples of organizational values include high standards, customer care, respecting tradition and authority, acting cautiously and conservatively, and being frugal.

High-performing service providers continually align the value network for efficiency and effectiveness. Culture through the value network is transmitted to staff through socialization, training programmes, stories, ceremonies and language.

Constraints such as governance, capabilities, standards, resources, values and ethics play a significant role in organizational culture and behaviour. Organizational culture can also be affected by structure or management styles resulting in a positive or negative impact on performance. Organizational structures and management styles contribute to the behaviour of people, process, technology and partners. These are important aspects in adopting service management practices and ITIL.

Change related to service management programmes will affect organizational culture and it is important to prepare people with effective communication plans, training, policies and procedures to achieve the desired performance outcomes. Establishing cultural change is also an important factor for collaborative working between the many different people involved in service management. Managing people through

service transitions is discussed at more length in Chapter 5 of *ITIL Service Transition*.

### 2.2.4 The service portfolio

The service portfolio is the complete set of services that is managed by a service provider and it represents the service provider's commitments and investments across all customers and market spaces. It also represents present contractual commitments, new service development, and ongoing service improvement plans initiated by continual service improvement. The portfolio may include third-party services, which are an integral part of service offerings to customers.

The service portfolio represents all the resources presently engaged or being released in various stages of the service lifecycle. It is a database or structured document in three parts:

- **Service pipeline** All services that are under consideration or development, but are not yet available to customers. It includes major investment opportunities that have to be traced to the delivery of services, and the value that will be realized. The service pipeline provides a business view of possible future services and is part of the service portfolio that is not normally published to customers.
- **Service catalogue** All live IT services, including those available for deployment. It is the only part of the service portfolio published to customers, and is used to support the sale and delivery of IT services. It includes a customer-facing view (or views) of the IT services in use, how they are intended to be used, the business processes they enable, and the levels and quality of service the customer can expect for each service. The service catalogue also includes information about supporting services required by the service provider to deliver customer-facing services. Information about services can only enter the service catalogue after due diligence has been performed on related costs and risks.
- **Retired services** All services that have been phased out or retired. Retired services are not available to new customers or contracts unless a special business case is made.

Service providers often find it useful to distinguish customer-facing services from supporting services:

- **Customer-facing services** IT services that are visible to the customer. These are normally services that support the customer's business processes and facilitate one or more outcomes desired by the customer.
- **Supporting services** IT services that support or 'underpin' the customer-facing services. These are typically invisible to the customer, but are essential to the delivery of customer-facing IT services.

Figure 2.6 illustrates the components of the service portfolio, which are discussed in detail in *ITIL Service Strategy*. These are important components of the service knowledge management system (SKMS) described in section 2.2.5.

### 2.2.5 Knowledge management and the SKMS

Quality knowledge and information enable people to perform process activities and support the flow of information between service lifecycle stages and processes. Understanding, defining, establishing and maintaining information is a responsibility of the knowledge management process.

Implementing an SKMS enables effective decision support and reduces the risks that arise from a lack of proper mechanisms. However, implementing an SKMS can involve a large investment in tools to store and manage data, information and knowledge. Every organization will start this work in a different place, and have their own vision of where they want to be, so there is no simple answer to the question 'What tools and systems are needed to support knowledge management?' Data, information and knowledge need to be interrelated across the organization. A document management system and/or a configuration management system (CMS) can be used as a foundation for implementation of the SKMS.

Figure 2.7 illustrates an architecture for service knowledge management that has four layers including examples of possible content at each layer. These are:

- **Presentation layer** Enables searching, browsing, retrieving, updating, subscribing and collaboration. The different views onto the other layers are suitable for different audiences. Each view should be protected to ensure that only authorized people can see or modify the underlying knowledge, information and data.

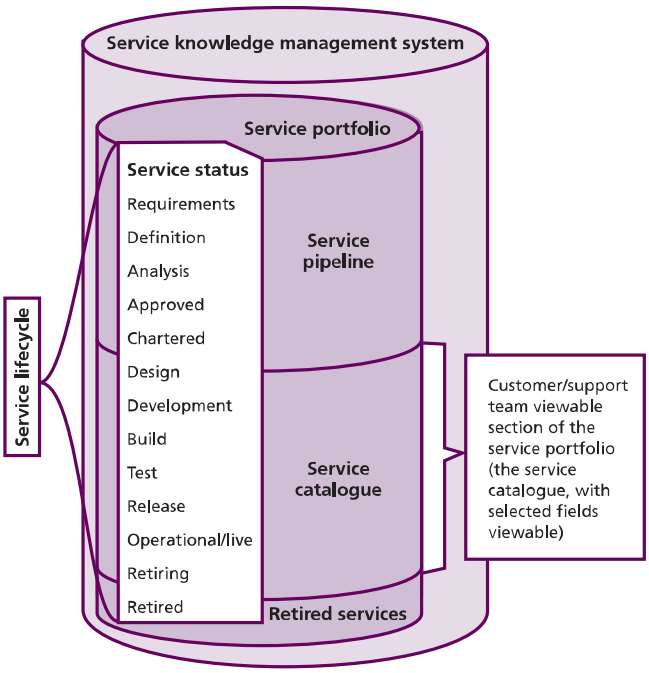



*Figure 2.6 The service portfolio and its contents*

- **Knowledge processing layer** Is where the information is converted into useful knowledge which enables decision-making.
- **Information integration layer** Provides integrated information that may be gathered from data in multiple sources in the data layer.
- **Data layer** Includes tools for data discovery and data collection, and data items in unstructured and structured forms.

In practice, an SKMS is likely to consist of multiple tools and repositories. For example, there may be a tool that provides all four layers for the support of different processes or combinations of processes. Various tools providing a range of perspectives will be used by different stakeholders to access this common repository for collaborative decision support.

This architecture is applicable for many of the management information systems in ITIL. A primary component of the SKMS is the service portfolio, covered in section 2.2.4. Other examples include the CMS, the availability management information system (AMIS) and the capacity management information system (CMIS).

## 2.3 GOVERNANCE AND MANAGEMENT SYSTEMS

### 2.3.1 Governance

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.

**Definition: 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.

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. Further information on governance and service management is provided in Chapter 5 of *ITIL Service Strategy*. The international standard for corporate governance of IT is ISO/IEC 38500, described in Appendix N.

### 2.3.2 Management systems

A system is a number of related things that work together to achieve an overall objective. Systems should be self-regulating for agility and timeliness. In order to accomplish this, the relationships within the system must influence one another for the sake of the whole. Key components of the system are the structure and processes that work together.

A systems approach to service management ensures learning and improvement through a big-picture view of services and service management.

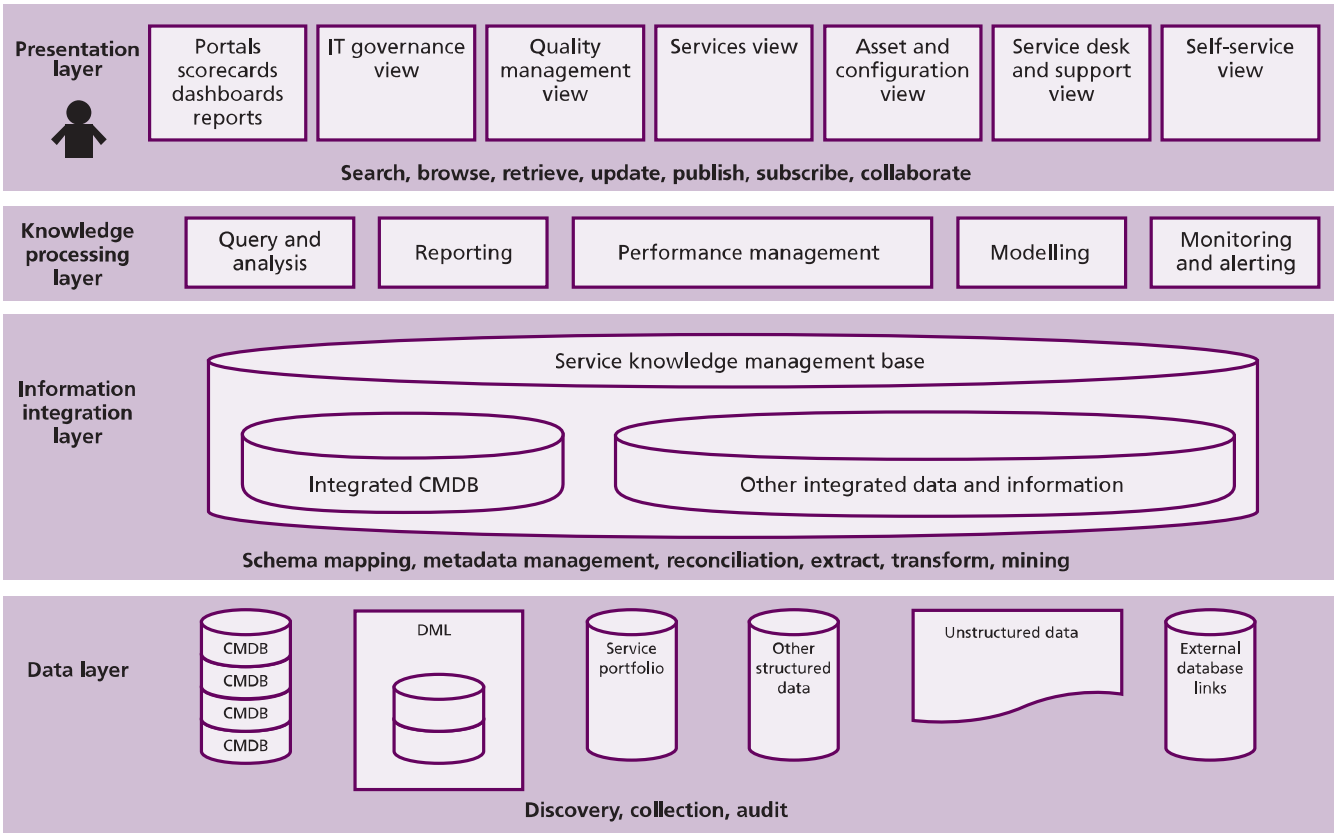



*Figure 2.7 Architectural layers of an SKMS*

It extends the management horizon and provides a sustainable long-term approach.

By understanding the system structure, the interconnections between all the assets and service components, and how changes in any area will affect the whole system and its constituent parts over time, a service provider can deliver benefits such as:

- Ability to adapt to the changing needs of customers and markets
- Sustainable performance
- Better approach to managing services, risks, costs and value delivery
- Effective and efficient service management
- Simplified approach that is easier for people to use
- Less conflict between processes
- Reduced duplication and bureaucracy.

Many businesses have adopted management system standards for competitive advantage and to ensure a consistent approach in implementing service management across their value network.

Implementation of a management system also provides support for governance (see section 2.3.1).

**Definition: management system (ISO 9001)**

The framework of policy, processes, functions, standards, guidelines and tools that ensures an organization or part of an organization can achieve its objectives.

A management system of an organization can adopt multiple management system standards, such as:

- A quality management system (ISO 9001)
- An environmental management system (ISO 14000)
- A service management system (ISO/IEC 20000)
- An information security management system (ISO/IEC 27001)
- A management system for software asset management (ISO/IEC 19770).

Service providers are increasingly adopting these standards to be able to demonstrate their service management capability. As there are common

elements between such management systems, they should be managed in an integrated way rather than having separate management systems. To meet the requirements of a specific management system standard, an organization needs to analyse the requirements of the relevant standard in detail and compare them with those that have already been incorporated in the existing integrated management system. Appendix N provides further information on these standards.

ISO management system standards use the Plan-Do-Check-Act (PDCA) cycle shown in Figure 2.8. The ITIL service lifecycle approach embraces and enhances the interpretation of the PDCA cycle. You will see the PDCA cycle used in the structure of the guidance provided in each of the core ITIL publications. This guidance recognizes the need to drive governance, organizational design and management systems from the business strategy, service strategy and service requirements.

**Definition: ISO/IEC 20000**

An international standard for IT service management.

ISO/IEC 20000 is an internationally recognized standard that allows organizations to demonstrate excellence and prove best practice in ITSM.

Part 1 specifies requirements for the service provider to plan, establish, implement, operate, monitor, review, maintain and improve a service management system (SMS). Coordinated integration and implementation of an SMS, to meet the Part 1 requirements, provides ongoing control, greater effectiveness, efficiency and opportunities for continual improvement. It ensures that the service provider:

- Understands and fulfils the service requirements to achieve customer satisfaction
- Establishes the policy and objectives for service management
- Designs and delivers changes and services that add value for the customer
- Monitors, measures and reviews performance of the SMS and the services
- Continually improves the SMS and the services based on objective measurements.

Service providers across the world have successfully established an SMS to direct and control their service management activities. The adoption of an SMS should be a strategic decision for an organization.

One of the most common routes for an organization to achieve the requirements of ISO/IEC 20000 is by adopting ITIL service management

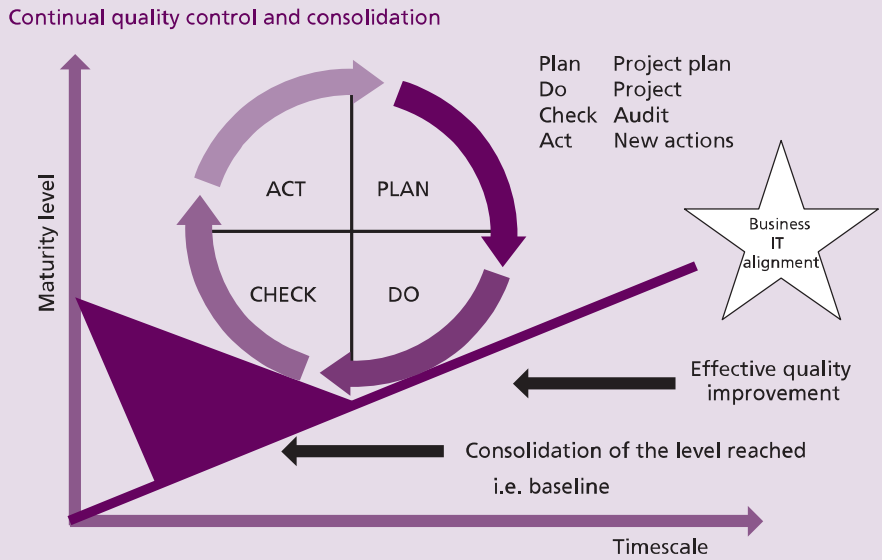



*Figure 2.8 Plan-Do-Check-Act cycle*

best practices and using the ITIL qualification scheme for professional development.

Certification to ISO/IEC 20000-1 by an accredited certification body shows that a service provider is committed to delivering value to its customers and continual service improvement. It demonstrates the existence of an effective SMS that satisfies the requirements of an independent external audit. Certification gives a service provider a competitive edge in marketing. Many organizations specify a requirement to comply with ISO/IEC 20000 in their contracts and agreements.

## 2.4 THE SERVICE LIFECYCLE

Services and processes describe how things change, whereas structure describes how they are connected. Structure helps to determine the correct behaviours required for service management.

Structure describes how process, people, technology and partners are connected. Structure is essential for organizing information. Without structure, our service management knowledge is merely a collection of observations, practices and conflicting goals. The structure of the service lifecycle is an organizing framework, supported by the organizational structure, service portfolio and service models within an organization. Structure can influence or determine the behaviour of the organization and people. Altering the structure of service management can be more effective than simply controlling discrete events.

Without structure, it is difficult to learn from experience. It is difficult to use the past to educate for the future. We can learn from experience but we also need to confront directly many of the most important consequences of our actions.

See Chapter 1 for an introduction to each ITIL service lifecycle stage.

### 2.4.1 Specialization and coordination across the lifecycle

Organizations need a collaborative approach for the management of assets which are used to deliver and support services for their customers.

Organizations should function in the same manner as a high-performing sports team. Each player in a team and each member of the team's organization who are not players position themselves to support the goal of the team. Each player and team member has a different specialization that contributes to the whole. The team matures over time taking into account feedback from experience, best practice, current process and procedures to become an agile high-performing team.

Specialization and coordination are necessary in the lifecycle approach. Specialization allows for expert focus on components of the service but components of the service also need to work together for value. Specialization combined with coordination helps to manage expertise, improve focus and reduce overlaps and gaps in processes. Specialization and coordination together help to create a collaborative and agile organizational architecture that maximizes utilization of assets.

Coordination across the lifecycle creates an environment focused on business and customer outcomes instead of just IT objectives and projects. Coordination is also essential between functional groups, across the value network, and between processes and technology.

Feedback and control between organizational assets helps to enable operational efficiency, organizational effectiveness and economies of scale.

### 2.4.2 Processes through the service lifecycle

Each core ITIL lifecycle publication includes guidance on service management processes as shown in Table 2.1.

Service management is more effective if people have a clear understanding of how processes interact throughout the service lifecycle, within the organization and with other parties (users, customers, suppliers).

Process integration across the service lifecycle depends on the service owner, process owners, process practitioners and other stakeholders understanding:

- The context of use, scope, purpose and limits of each process
- The strategies, policies and standards that apply to the processes and to the management of interfaces between processes
- Authorities and responsibilities of those involved in each process

- The information provided by each process that flows from one process to another; who produces it; and how it is used by integrated processes.

Integrating service management processes depends on the flow of information across process and organizational boundaries. This in turn depends on implementing supporting technology and management information systems across organizational boundaries, rather than in silos. If service management processes are implemented, followed or changed in isolation, they can become a bureaucratic overhead that does not deliver value for money. They could also damage or negate the operation or value of other processes and services.

**Table 2.1 The processes described in each core ITIL publication**

| Core ITIL lifecycle publication | Processes described in the publication |
|---|---|
| *ITIL Service Strategy* | Strategy management for IT services |
| | Service portfolio management |
| | Financial management for IT services |
| | Demand management |
| | Business relationship management |
| *ITIL Service Design* | Design coordination |
| | Service catalogue management |
| | Service level management |
| | Availability management |
| | Capacity management |
| | IT service continuity management |
| | Information security management |
| | Supplier management |
| *ITIL Service Transition* | Transition planning and support |
| | Change management |
| | Service asset and configuration management |
| | Release and deployment management |
| | Service validation and testing |
| | Change evaluation |
| | Knowledge management |
| *ITIL Service Operation* | Event management |
| | Incident management |
| | Request fulfilment |
| | Problem management |
| | Access management |
| *ITIL Continual Service Improvement* | Seven-step improvement process |

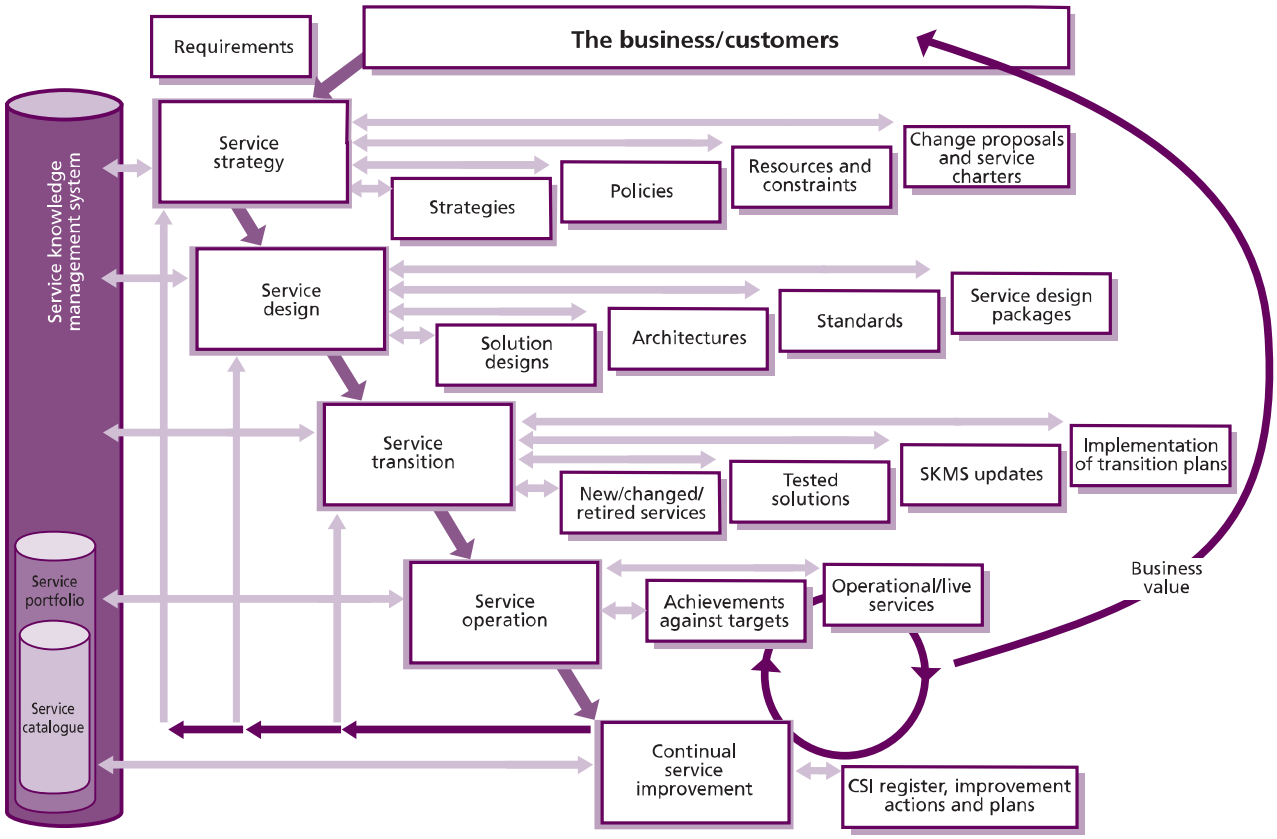



*Figure 2.9 Integration across the service lifecycle*

As discussed in section 2.2.2, each process has a clear scope with a structured set of activities that transform inputs to deliver the outputs reliably. A process interface is the boundary of the process. Process integration is the linking of processes by ensuring that information flows from one process to another effectively and efficiently. If there is management commitment to process integration, processes are generally easier to implement and there will be fewer conflicts between processes.

Stages of the lifecycle work together as an integrated system to support the ultimate objective of service management for business value realization. Every stage is interdependent as shown in Figure 2.9. See Appendix O for examples of inputs and outputs across the service lifecycle.

The SKMS, described in section 2.2.5, enables integration across the service lifecycle stages. It provides secure and controlled access to the knowledge, information and data that are needed to manage and deliver services. The service portfolio represents all the assets presently engaged or being released in various stages of the lifecycle.

Chapter 1 provides a summary of each stage in the service lifecycle but it is also important to understand how the lifecycle stages work together.

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

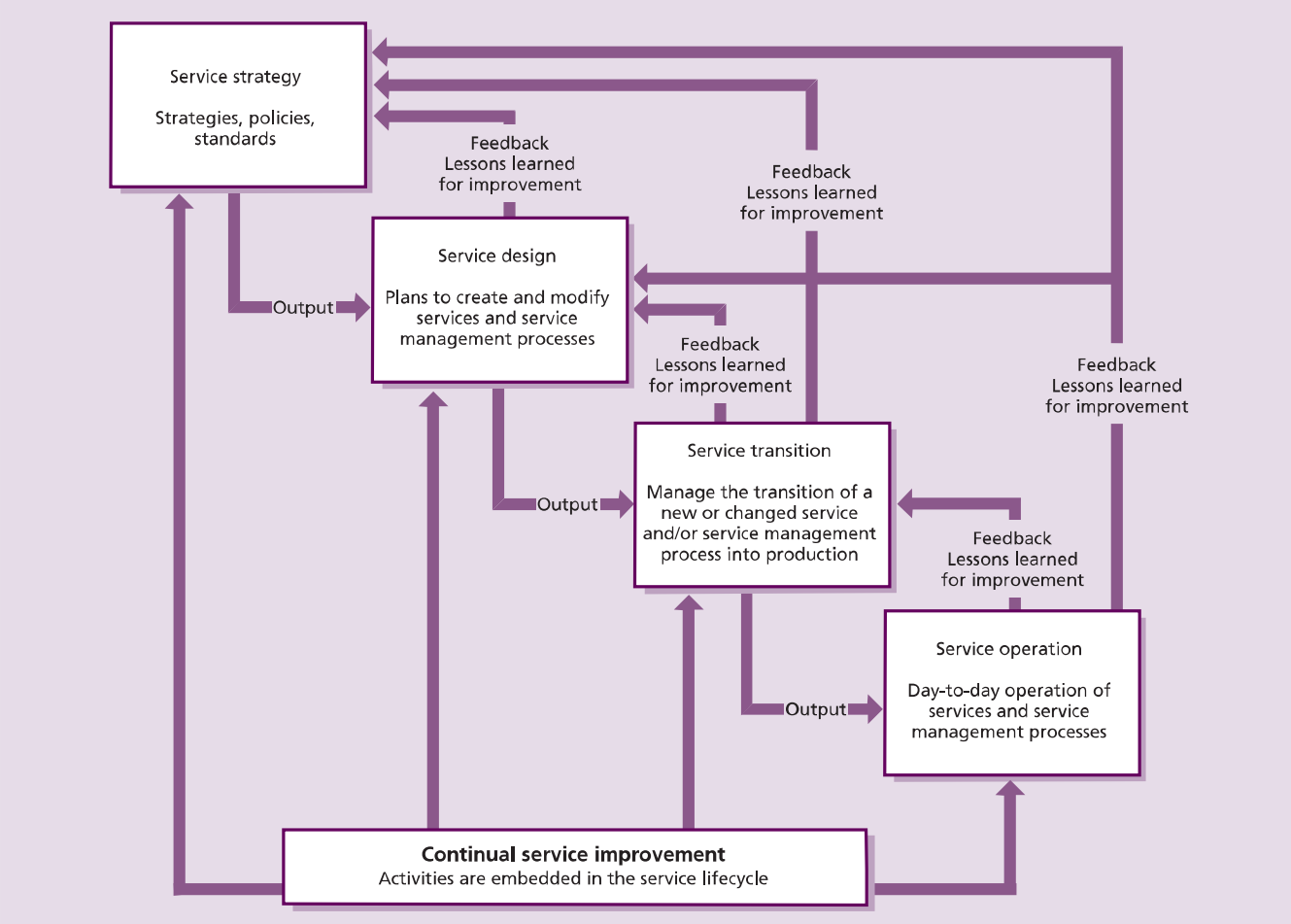



*Figure 2.10 Continual service improvement and the service lifecycle*

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.

Most ITIL processes and functions have activities that take place across multiple stages of the service lifecycle. For example:

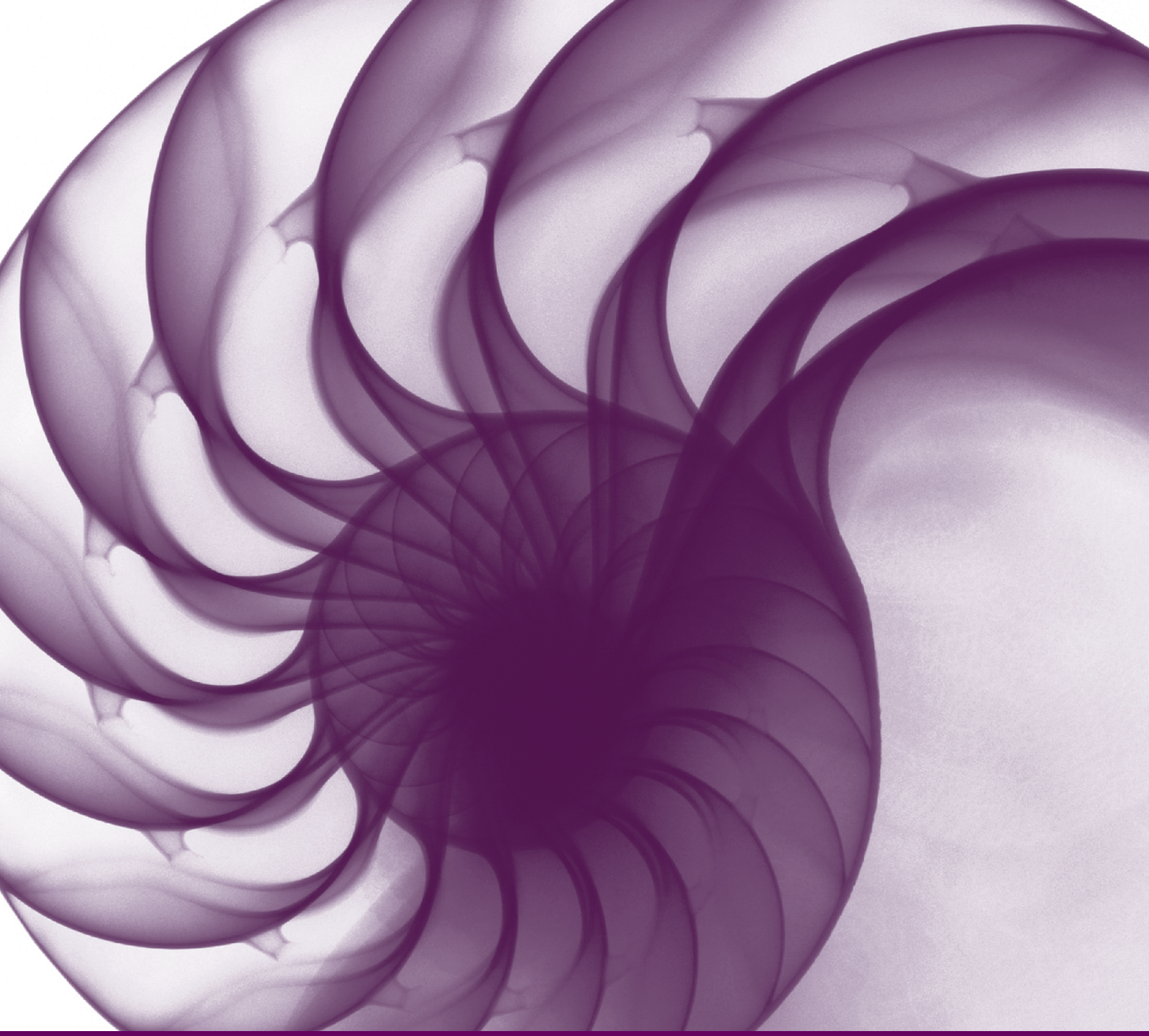
- The service validation and testing process may design tests during the service design stage and perform these tests during service transition.
- The technical management function may provide input to strategic decisions about technology, as well as assisting in the design and transition of infrastructure components.
- Business relationship managers may assist in gathering detailed requirements during the service design stage of the lifecycle, or take part in the management of major incidents during the service operation stage.
- All service lifecycle stages contribute to the seven-step improvement process.

Appendix O identifies some of the major inputs and outputs between each stage of the service lifecycle. Chapter 3 of each core ITIL publication provides more detail on the inputs and outputs of the specific lifecycle stage it describes.

The strength of the service lifecycle rests upon continual feedback throughout each stage of the lifecycle. This feedback ensures that service optimization is managed from a business perspective and is measured in terms of the value the business derives from services at any point in time during the service lifecycle. The service lifecycle is non-linear in design. At every point in the service lifecycle, the process of monitoring, assessment and feedback between each stage drives decisions about the need for minor course corrections or major service improvement initiatives.

Figure 2.10 illustrates some examples of the continual feedback system built into the service lifecycle.

Adopting appropriate technology to automate the processes and provide management with the information that supports the processes is also important for effective and efficient service management.



# 3 Service design principles

# 3 Service design principles

*'See first that the design is wise and just: that ascertained, pursue it resolutely; do not for one repulse forgo the purpose that you resolved to effect.'* William Shakespeare (1564–1616)

*'The common mistake that people make when trying to design something completely foolproof is to underestimate the ingenuity of complete fools.'* Douglas Adams (1952–2001)

The main purpose of the service design stage of the lifecycle is the design of new or changed services for introduction into the live environment. In this context, the retirement of a service also constitutes a 'change' and must be carefully designed. This stage of the lifecycle is also responsible for the design of the service provider's overall service management system and the many aspects required to deliver services effectively such as processes, architectures and tools.

## 3.1 SERVICE DESIGN BASICS

If services or processes are not designed they will evolve organically. If they evolve without proper controls, the tendency is simply to react to environmental conditions that have occurred rather than to understand clearly the overall vision and needs of the business. Designing to match the anticipated environment is much more effective and efficient, but often impossible – hence the need to consider iterative and incremental approaches to service design. Iterative and incremental approaches are essential to ensure that services introduced to the live environment continually adapt in alignment with evolving business needs. In the absence of formalized service design, services will often be unduly expensive to run, prone to failure, resources will be wasted and services will not be fully aligned to business needs. It is unlikely that any improvement programme will ever be able to achieve what proper design should achieve in the first place. Without service design, cost-effective service is not possible.

Adopting and implementing standardized and consistent approaches for service design will:

- Enable projects to estimate the cost, timing, resource requirement and risks associated with the service design stage more accurately
- Result in higher volumes of successful change
- Make design methods easier for people to adopt and follow
- Enable service design assets to be shared and reused across projects and services
- Reduce delays from the need to redesign prior to completion of service transition
- Improve management of expectations for all stakeholders involved in service design including customers, users, suppliers, partners and projects
- Increase confidence that the new or changed service can be delivered to specification without unexpectedly affecting other services or stakeholders
- Ensure that new or changed services will be maintainable and cost-effective.

All designs and design activities need to be driven principally by the business needs and requirements of the organization. Within this context they must also reflect the needs of the strategies, plans and policies produced by service strategy processes, as illustrated in Figure 2.9.

Figure 2.9 gives a good overview of some of the key links, inputs and outputs involved at each stage of the service lifecycle. It illustrates key outputs produced by each stage, which are used as inputs by the subsequent stages. The service portfolio acts as 'the spine' of the service lifecycle. It is the single integrated source of information on the status of each service, together with other service details and the interfaces and dependencies between services. The information within the service portfolio is used by the activities within each stage of the service lifecycle.

The key output of the service design stage is the design of service solutions to meet the changing requirements of the business. When designing these solutions, input from many different areas needs to be considered within the various activities involved in designing the service solution, from identifying and analysing requirements, through to building a solution and service design package (SDP – see Appendix A) to hand over to service transition.

### 3.1.1 Holistic service design

There are five individual aspects of service design, and these are discussed in much greater detail later in this chapter. These aspects are the design of:

- Service solutions for new or changed services
- Management information systems and tools, (especially the service portfolio, including the service catalogue)
- Technology architectures and management architectures
- The processes required
- Measurement methods and metrics.

It is important that a holistic, results-driven approach to all aspects of design is adopted, and that when changing or amending any of the individual elements of design all other aspects are considered. When designing and developing a new application, this should not be done in isolation, but should also consider the impact on the overall service, the management information systems and tools (e.g. service portfolio and service catalogue), the architectures, the technology, the service management processes, and the necessary measurements and metrics. This will ensure not only that the functional elements are addressed by the design, but also that all of the management and operational requirements are addressed as a fundamental part of the design and are not added as an afterthought.

This holistic approach and the five aspects of design identified above are important parts of the service provider's overall service management system. For more on establishing a service management system, see section 2.3.2.

This approach should also be used when the change to the service is its retirement. Unless the retirement of a service or any aspect of a service is carefully planned, the retirement could cause unexpected negative effects on the customer or business which might otherwise have been avoided.

**Key message**

A holistic approach should be adopted for all service design aspects and areas to ensure consistency and integration within all activities and processes across the entire IT technology, providing end-to-end business-related functionality and quality.

Not every change within an IT service will require the instigation of the same level of service design activity. It can be argued that every change, no matter how small, needs to be designed, but the scale of the activity necessary to ensure success will vary greatly from one change type to another. Every organization must define what categories of change require what level of design activity and ensure that everyone within the organization is clear on these requirements. In other words, all changes should be assessed for their service design requirements to determine the correct service design activities to undertake in each circumstance. This should be part of the change management process impact assessment described within *ITIL Service Transition*.

### 3.1.2 IT service design and overall business change

IT service design is a part of the overall business change process. This business change process and the role of IT are illustrated in Figure 3.1. The diagram shows the overall flow of the process used to manage change on the business side – the 'business change process'. The individual steps of the change process reflect that when it is invoked,

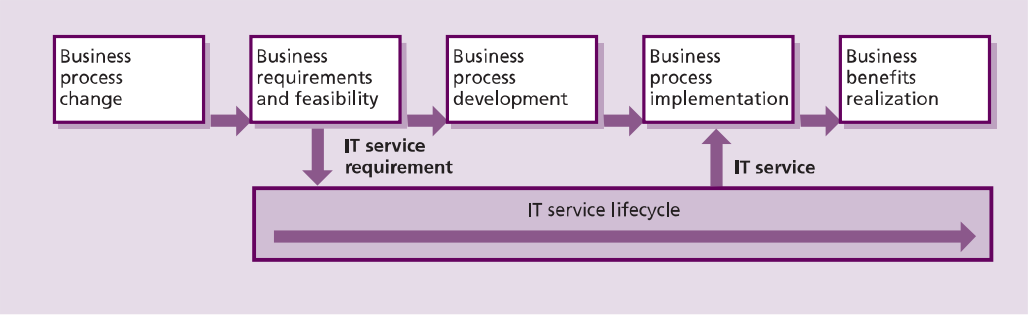



*Figure 3.1 The business change process*

the element changing on the business side is most often a business process (a 'business process change'), resulting in the need for a supporting change in IT service.

Once accurate information on what is required has been obtained and signed off with regard to the changed needs of the business, the plan for the delivery of a service to meet the agreed need can be developed. The role of the service design stage within this overall business change process can be described as the design of appropriate and innovative IT services, including their architectures, processes, policies and documentation, to meet current and future agreed business requirements.

### 3.1.3 Scope and flow of service design

The service design stage of the lifecycle starts with a set of new or changed business requirements and ends with the development of a service solution designed to meet the documented needs of the business. This service solution, together with its SDP, is then passed to service transition to evaluate, build, test and deploy the new or changed service, or to retire the service, if this is the change required. On completion of these transition activities, control is transferred to the service operation stage of the service lifecycle. The overall scope of service design and the five aspects of design are illustrated in Figure 3.2 within the context of the IT service provider's relationship to the business. Figure 3.2 shows how IT and the business interact through the provision of service

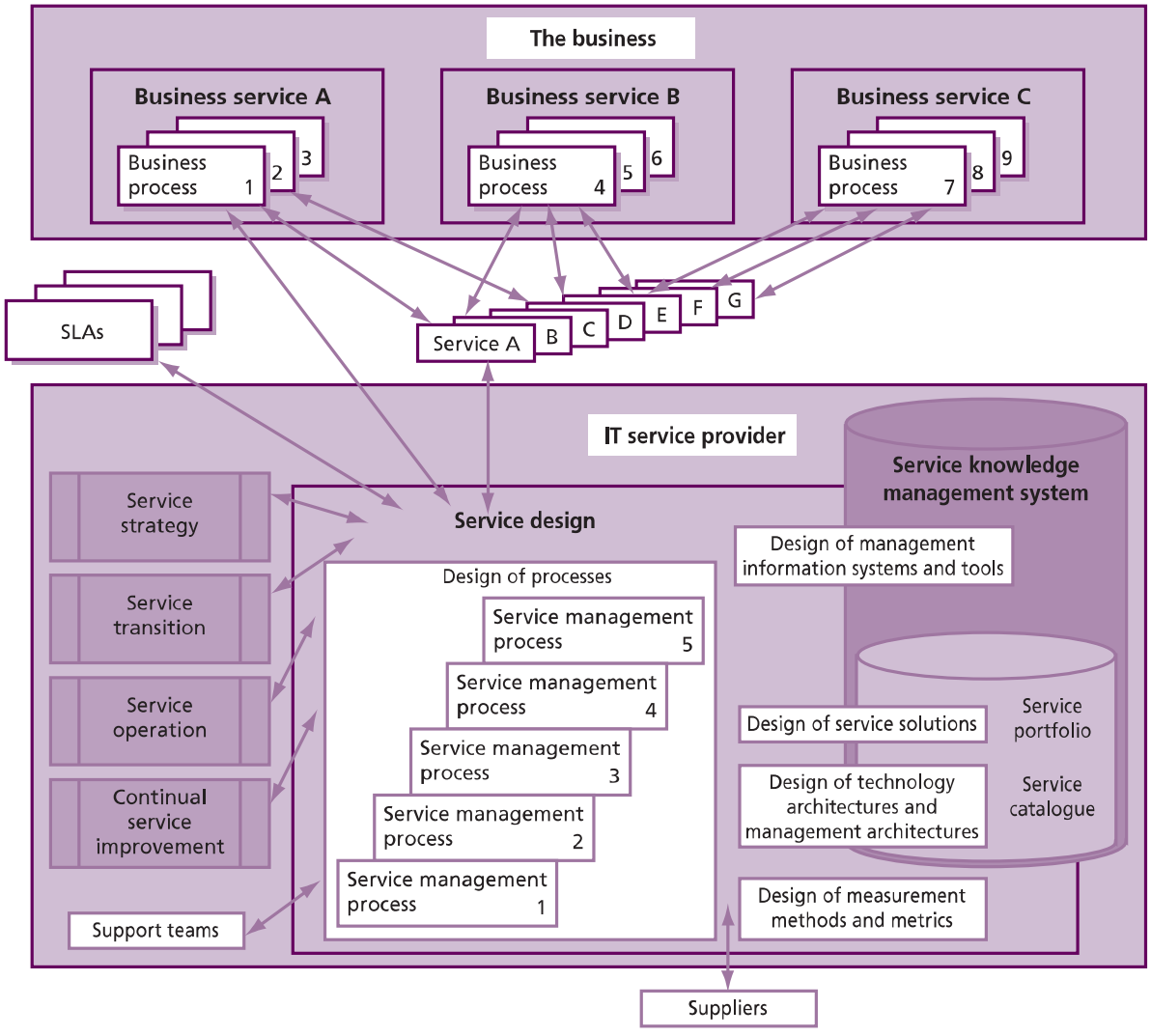



*Figure 3.2 Scope of service design*

and how the work of service design is part of the complete service lifecycle.

There are five individual aspects of service design:

- **Service solutions for new or changed services** The requirements for new or changed services are extracted from the service portfolio. Each requirement is analysed, documented and agreed, and a solution design is produced that is then compared with the strategies and constraints from service strategy to ensure that it conforms to corporate and IT policies. The design must ensure that this new or changed service is consistent with all other services, and that all other services that interface with, underpin or depend on the new or changed service are consistent with the new service. If not, either the design of the new service or the other existing services will need to be adapted.

  Each individual service solution design is also considered in conjunction with each of the other four aspects of service design.
- **The management information systems and tools, especially the service portfolio** The management information systems and tools should be reviewed to ensure they are capable of supporting the new or changed service. (Examples of several of the key management information systems and tools to be addressed are shown in Figure 3.2.)
- **The technology architectures and management architectures** These are reviewed to ensure that all the technology architectures and management architectures are consistent with the new or changed service and have the capability to operate and maintain the new service. If not, then either the architectures will need to be amended or the design of the new service will need to be revised.
- **The processes required** These are reviewed to ensure that the processes, roles, responsibilities and skills have the capability to operate, support and maintain the new or changed service. If not, the design of the new service will need to be revised or the existing process capabilities will need to be enhanced. This includes all IT and service management processes, not just the processes involved in the service design stage itself.
- **The measurement methods and metrics** These are reviewed to ensure that the existing measurement methods can provide the required metrics on the new or changed service. If not, then the measurement methods will need to be enhanced or the service metrics will need to be revised.

Completion of all of the above activities during the service design stage will ensure minimal issues arising during the subsequent stages of the service lifecycle. Therefore service design must consolidate the key design issues and activities of all IT and service management processes within its own design activities, to ensure that all aspects are considered and included within all designs for new or changed services as part of everyday process operation.

### 3.1.4 Value to the business

In ITIL it is understood that the focus on business processes supported and business value provided is a fundamental principle of IT service management. With this focus, the impact of technology on the business and how business change may impact technology can both be predicted. The creation of a totally integrated service catalogue – including business units, processes and services, and their relationships and dependencies on IT services, technology and components – is crucial to increasing the IT service provider's capability to meet the business's needs. All aspects of service design are vital elements in supporting and enhancing the capability of the IT service provider, particularly the design of the service portfolio, the service catalogue and the individual IT services. All of these activities will also improve the alignment of IT service provision with the business's goals and its evolving needs.

The business focus in ITIL service management (ITSM) enables an IT service provider organization to:

- Align IT service provision with business goals and objectives
- Prioritize all IT activities based on business impact and urgency, ensuring critical business processes and services receive the most attention
- Increase business productivity and profitability through the increased efficiency and effectiveness of IT processes

- Support the requirements for corporate governance with appropriate IT governance and controls
- Create competitive advantage through the exploitation and innovation of IT infrastructure as a whole
- Improve service quality, customer satisfaction and user perception
- Ensure regulatory and legislative compliance
- Ensure appropriate levels of protection on all IT and information assets
- Ensure that IT services continue to be aligned with changing business needs over time.

#### *3.1.4.1 Demonstrating business value*

The ability to measure and demonstrate value to the business requires the capability to link business outcomes, objectives and their underpinning processes and functions to the IT services and their underpinning assets, processes and functions. The service provider can ensure that service provision is linked to business value by:

- Agreeing services, service level agreements (SLAs) and targets across the whole enterprise, ensuring critical business processes receive most attention
- Measuring IT quality in business/user terms, reporting what is relevant to users (e.g. customer satisfaction, business value)
- Mapping business processes to IT services and IT infrastructure, to ensure that dependencies between the relationships are well understood, and to reduce the possibility of disruptions caused by loss of focus on business services and processes
- Mapping business processes to business and service measurements, to ensure focus on IT service measurements related to business performance measurements and desired business outcomes
- Mapping infrastructure resources to services in order to take full advantage of critical IT components that are linked to critical business processes. This mapping is done within the configuration management system (CMS), and may also use information within the complete service knowledge management system (SKMS). (More information on the CMS can be found within *ITIL Service Transition*.)
- Providing end-to-end performance monitoring and measurement of IT services supporting business processes, regularly reported against SLA targets.

### 3.1.5 Comprehensive and integrated service design

It is essential that IT systems and services are designed, planned, implemented and managed appropriately for the business as a whole. The requirement then is to provide IT services that:

- Are business- and customer-oriented, focused and driven
- Are cost-effective
- Meet the customer's security requirements
- Are flexible and adaptable, yet fit for purpose at the point of delivery
- Can absorb an ever-increasing demand in the volume and speed of change
- Meet increasing business demands for continuous operation
- Are managed and operated to an acceptable level of risk
- Are responsive, with appropriate availability and capacity matched to business needs.

With all these pressures on both IT and the business, the temptation – and unfortunately the reality in some cases – is to 'cut corners' on the design and planning processes or to ignore them completely. However, in these situations the design and planning activities are even more essential to the overall delivery of quality services. Therefore, more time rather than less should be devoted to the design processes and their implementation.

In order that effective, quality design can be achieved, even when timescales are short and pressure to deliver services is high, organizations should ensure that the importance of the service design stage is fully understood and that support is provided to maintain and mature service design as a fundamental element of service management. Organizations should strive continually to review and improve their service design capability, in order that service design can become a consistent and repeatable practice, enabling organizations to deliver quality services against challenging timescales. Having a mature service design practice will also enable organizations to reduce risk in the transition and operational stages of service.

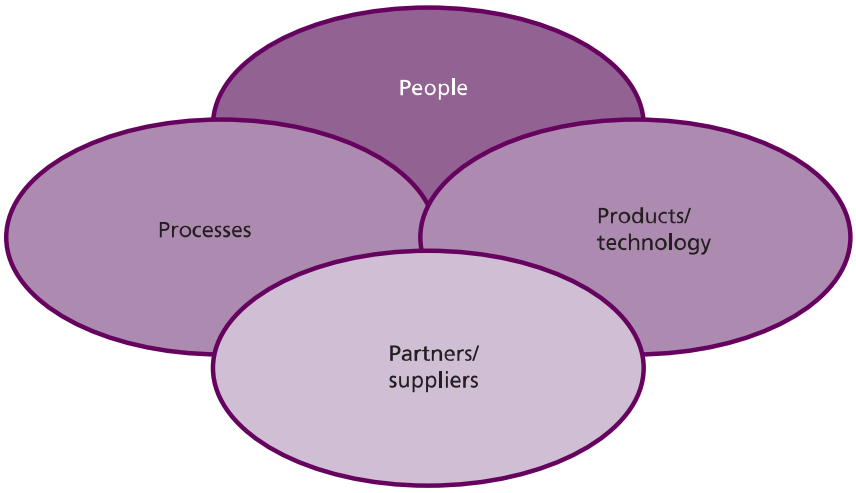



*Figure 3.3 The four Ps*

In general, the key to the successful provision of IT services is an appropriate level of design and planning to determine which projects, processes and services will have the greatest impact or benefit to the business. With the appropriate level of thought, design, preparation and planning, effort can be targeted at those areas that will yield the greatest return. Risk assessment and management are key requirements within all design activities. Therefore, risk assessment and management must be included as an integrated part of addressing all five aspects of service design. This will ensure that the risks involved in the provision of services and the operation of processes, technology and measurement methods are aligned with business risk and impact, because risk assessment and management are embedded within all design processes and activities.

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), as illustrated in Figure 3.3.

However, there is no benefit in producing designs, plans, architectures and policies and keeping them to yourself. They must be published, agreed, circulated and actively used.

It is important that the right interfaces and links to the design activities exist. When designing new or changed services, it is vital that the entire service lifecycle and ITSM processes are involved from the outset. Often difficulties occur in operations when a newly designed service is handed over for live running at the last minute. The following are actions that need to be undertaken from the outset of a service design to ensure that the solution meets the requirements of the business:

- The new service solution should be added to the overall service portfolio from the concept phase, and the service portfolio should be updated to reflect the current status through any incremental or iterative development. This will be beneficial not only from the financial perspective, but also from all other areas during design.
- As part of the initial service/system analysis, there will be a need to understand the service level requirements (SLRs) for the service when it goes live.
- From the SLRs, the various processes and functions must ascertain if customer's requirements can be met with current resources and capabilities. For example, the capacity management team can model this within the current infrastructure to ascertain if it will be able to support the new service. If organizational policies require it, the results from the modelling activities can be built into the capacity plan.
- If new infrastructure is required for the new service, or extended support, financial management for IT services will need to be involved to set the budget.

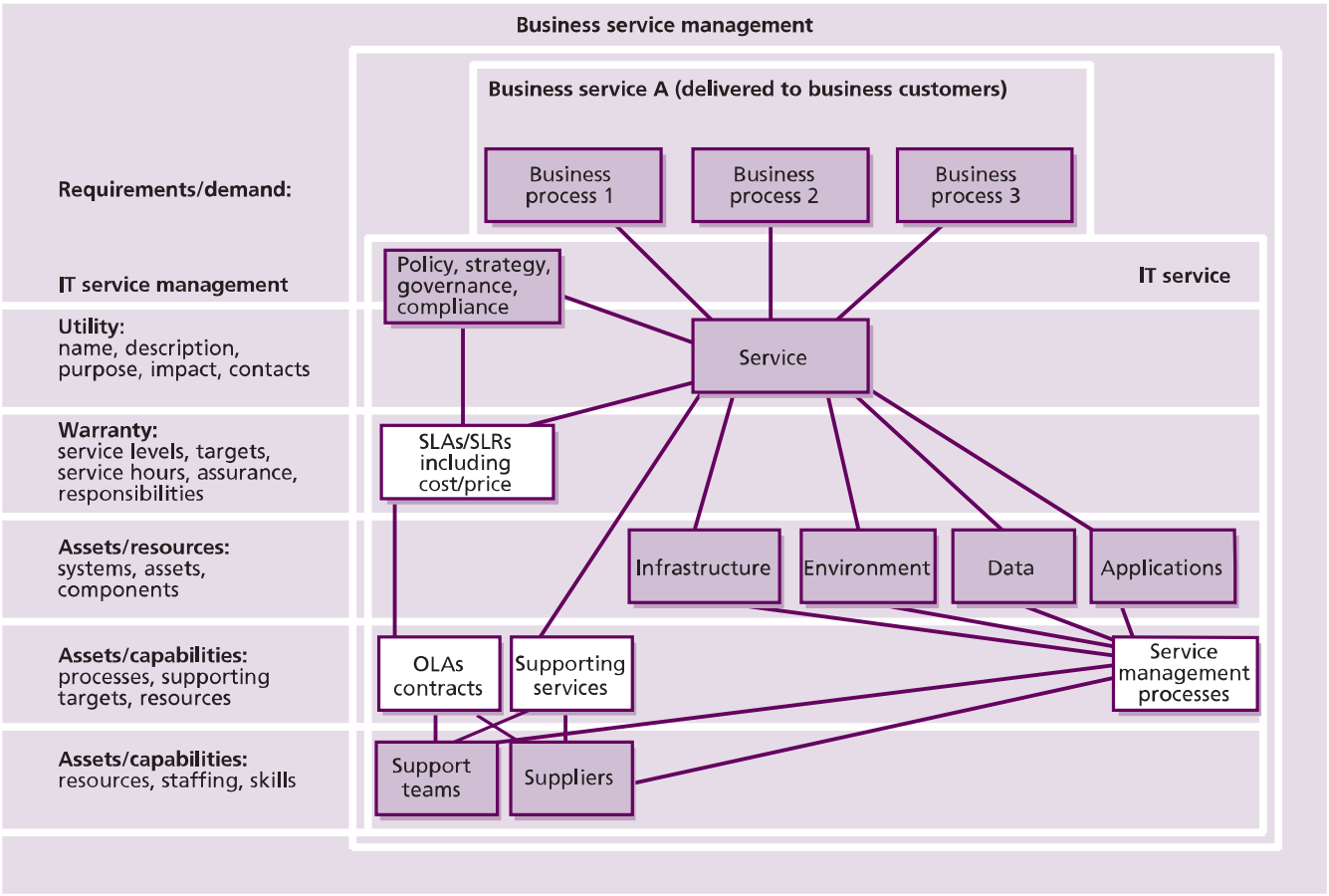



*Figure 3.4 Service composition*

- An initial business impact analysis and risk assessment should be conducted on services well before implementation as invaluable input into IT service continuity strategy, availability design, security design and capacity planning.
- The service desk will need to be made aware of new services well in advance of live operation to prepare and train service desk staff and potentially IT customer staff.
- The technical management, application management and IT operations management functions (see *ITIL Service Operation*) also need to be made aware of new services to allow them to plan for effective operational support of the services.
- Service transition can start planning the implementation and build into the change schedule.
- Supplier management will need to be involved if procurement is required for the new service.

The composition of a service and its constituent parts is illustrated in Figure 3.4.

Service design must consider all these aspects when designing service solutions to meet new and evolving business needs:

- **Business process** To define the functional needs of the service being provided – for example, telesales, invoicing, orders, credit checking
- **Service** The service itself that is being delivered to the customers and business by the service provider – for example, email, billing
- **Policy, strategy, governance, compliance** The elements defined by the organization to direct activity and thereby ensure adherence to organizational goals and objectives
- **SLAs/SLRs** The documents agreed with the customers that specify the level, scope and quality of service to be provided, either now for an existing service (SLAs) or in the future for a new service (SLRs)
- **Infrastructure** All of the IT equipment necessary to deliver the service to the customers and users, including servers, network circuits, switches, personal computers (PCs), telephones

- **Environment** The environment required to secure and operate the infrastructure – for example, data centres, power, air conditioning
- **Data** The data necessary to support the service and provide the information required by the business processes – for example, customer records, accounts ledger
- **Applications** All of the software applications required to manipulate the data and provide the functional requirements of the business processes – for example, enterprise resource management, financial or customer relationship management applications
- **Supporting services** Any services that are necessary to support the operation of the delivered service – for example, a shared service, a managed network service
- **Operational level agreements (OLAs) and underpinning contracts** Any underpinning agreements necessary to deliver the quality of service agreed within the SLA
- **Support teams** Any internal teams providing support for any of the components required to provide the service – for example, Unix, mainframe, networks
- **Suppliers** Any external third parties necessary to provide support for any of the components required to provide the service – for example, networks, hardware, software
- **Service management processes** Any processes needed by the service provider to ensure the successful provision of the service.

The design activities must not just consider each of the components above in isolation, but also must consider the relationships between each of the components and their interactions and dependencies on any other components and services, in order to provide an effective and comprehensive solution that meets the business needs.

### 3.1.6 Setting direction, policy and strategy for IT services

In order to ensure that business and IT services remain synchronized, many companies have a committee consisting of senior management roles from the business and IT organizations. This committee has the overall accountability for setting governance, direction, policy and strategy for IT services which form a critical element of the overall service management system of the service provider. Many organizations refer to this group as the IT strategy or steering group (ISG). The function of an ISG is to act as a partnership between IT and the business. It should meet regularly and review the business and IT strategies, designs, plans, service portfolio, architectures and policies to ensure that they are closely aligned with each other. It should provide the vision, set direction and determine priorities of individual programmes and projects to ensure that IT is aligned and focused on business targets and drivers. The group should also ensure that unrealistic timescales, which could jeopardize quality or disrupt normal operational requirements, are not imposed or attempted by either the business or IT (see Figure 3.5 and also section 6.8.6.2 of *ITIL Service Strategy*).

The ISG will include discussions on all aspects of the business that involve IT service, as well as proposed or possible change at a strategic level. Subjects for the ISG to discuss may include:

- **Reviewing business and IT plans** To identify any changes in either area that would trigger the need to create, enhance or improve services
- **Demand planning** To identify any changes in demand for both short- and long-term planning horizons; such changes may be increases or decreases in demand, and concern both business-as-usual and projects
- **Project authorization and prioritization** To ensure that projects are authorized and prioritized to the mutual satisfaction of both the business and IT
- **Review of projects** To ensure that the expected business benefits are being realized in accordance with project business cases, and to identify whether the projects are on schedule
- **Potential outsourcing** To identify the need and content of sourcing strategies for the IT service provision
- **Business/IT strategy review** To discuss major changes to business strategy and major proposed changes to IT strategy and technology, to ensure continued alignment
- **Business continuity and IT service continuity** The group, or a working party from the group, is responsible for aligning business continuity and IT service continuity strategies

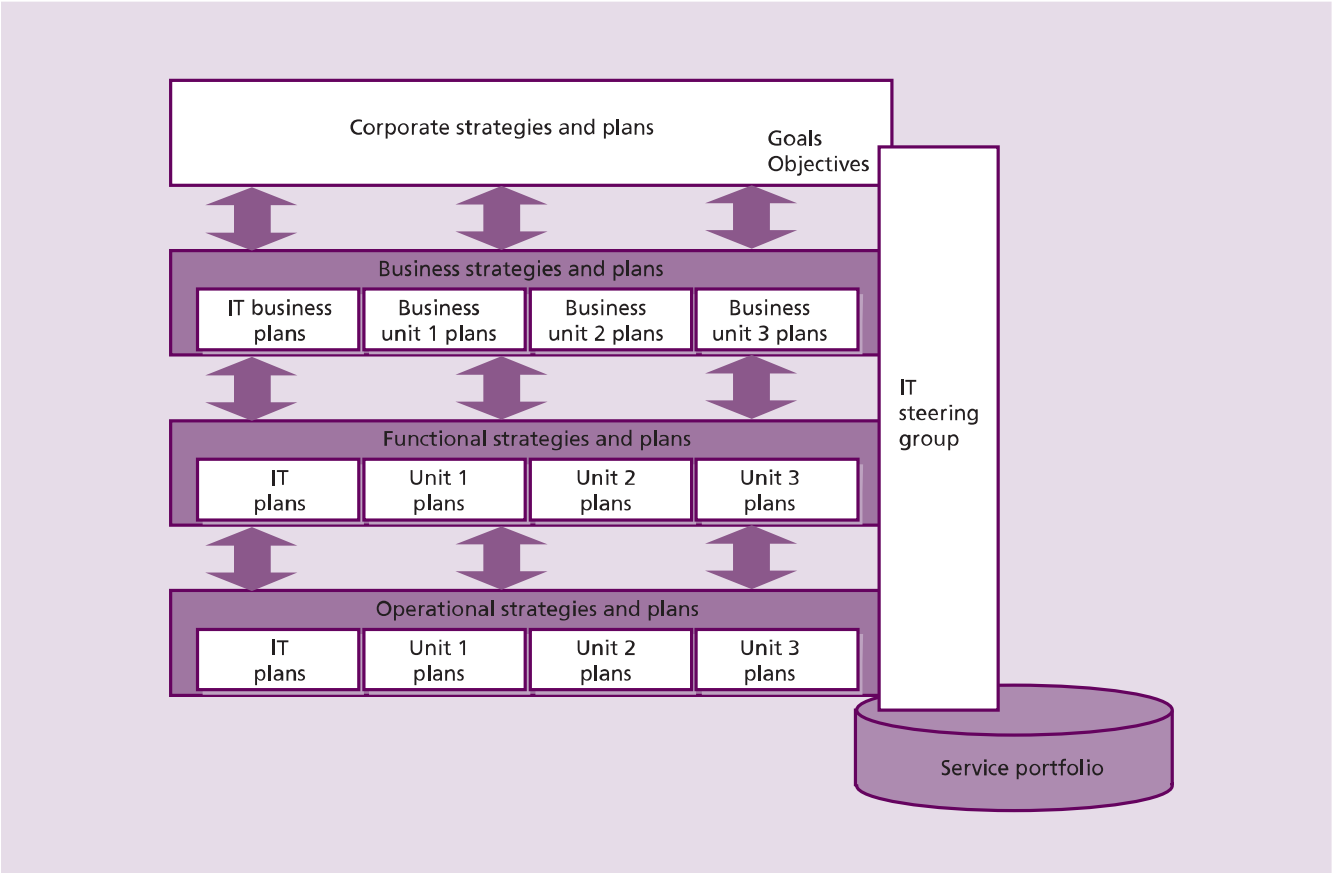



*Figure 3.5 The IT steering/strategy group*

- **Policies and standards** The ISG is responsible for ensuring that IT policies and standards, particularly in relation to financial strategy and performance management, are in place and aligned with the overall corporate vision and objectives.

The IT steering group sets the direction for policies and plans from corporate to operational levels of IT organization and ensures that they are consistent with corporate level strategies (see Figure 3.5).

The ISG has an important role to play in the alignment of business and IT strategies and plans, as illustrated in Figure 3.5. As a key source of input to the ISG in its decision-making role, the service portfolio enables the ISG to:

- Direct and steer the selection of investment in those areas that yield the greatest business value and return on investment (ROI)
- Perform effective programme and project selection, prioritization and planning
- Exercise effective ongoing governance and active management of the 'pipeline' of business requirements
- Ensure that the projected business benefits of programmes and projects are realized.

### 3.1.7 Optimizing design performance

The optimizing of design activities requires the implementation of documented processes, together with an overriding quality management system (such as ISO 9001) for their continual measurement and improvement. It is important that when considering the improvement and optimization of service design activities, the impact of the activities on all stages of the lifecycle should be measured and not just the impact on the design stage. Therefore service design measurements and metrics should look at the amount of rework activity and improvement activity that is needed on transition, operation and improvement activities as a result of inadequacies within the design of new and changed service solutions. More information

on measurement of service design can be found in section 8.5.

## 3.2 SERVICE DESIGN GOALS

The main goals and objectives of service design are to:

- Design services to satisfy business objectives and align with business needs, based on the quality, compliance, risk and security requirements, delivering more effective and efficient IT and business solutions by coordinating all design activities for IT services to ensure consistency and business focus
- Design services that can be easily and efficiently developed and enhanced within appropriate timescales and costs, and, wherever possible, reduce, minimize or constrain the long-term costs of service provision
- Design an efficient and effective service management system, including processes for the design, transition, operation and improvement of high-quality IT services, together with the supporting tools, systems and information, especially the service portfolio, to manage services through their lifecycle
- Identify and manage risks so that they can be removed or mitigated before services go live
- Design secure and resilient IT infrastructures, environments, applications and data/information resources and capability that meet the current and future needs of the business and customers
- Design measurement methods and metrics for assessing the effectiveness and efficiency of the design processes and their deliverables
- Produce and maintain IT plans, processes, policies, architectures, frameworks and documents for the design of quality IT solutions, to meet current and future agreed business needs
- Assist in the development of policies and standards in all areas of design and planning of IT services and processes, receiving and acting on feedback on design processes from all other areas and incorporating the actions into a continual process of improvement
- Develop the skills and capability within IT by moving strategy and design activities into operational tasks, making effective and efficient use of all IT service resources
- Contribute to the improvement of the overall quality of IT service within the imposed design constraints, especially by reducing the need for reworking and enhancing services once they have been implemented in the live environment.

## 3.3 BALANCED DESIGN

For any new business requirements, the design of services is a delicate balancing act, ensuring that not only the functional requirements but also the performance targets are met. In other words, ensuring that all required utility and warranty can be delivered by the service being designed. All of this needs to be balanced with regard to the resources available within the required timescale and the costs for the new services. Jim McCarthy, author of *Dynamics of Software Development*,[3] states that as a development manager, you are working with only three things (see Figure 3.6):

- **Functionality** The service or product and everything that is part of the service and its provision
- **Resources** The people, technology and money available for the effort
- **Schedule** The timescales for completion.

Note that throughout this publication, the word 'functionality' typically refers primarily to the utility of a service – what it does for the customer. In this context, however, McCarthy was using the term to refer to both utility and warranty (what the service will do and how it will do it) – this is what is being designed. We use resources to deliver this functionality to the customer within the schedule required.

Another way of putting this is that the service provider must always remember that the customer's business requirements include not only the details of the service itself, but also cost (associated with the investment in the resources) and schedule.

This concept is extremely important to service design activities and to the balance between the effort that is spent in the design, development and delivery of services in response to business requirements. Service design is a delicate balancing

3 McCarthy, Jim (2005). *Dynamics of Software Development*. Microsoft Press, Washington.

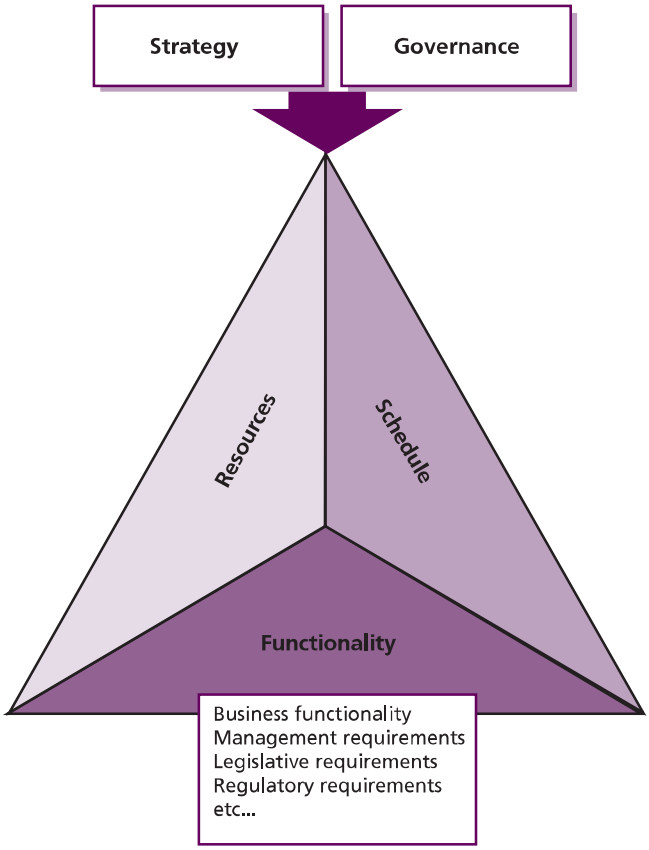



*Figure 3.6 Project elements in a triangulated relationship*

act of all three elements and the constant dynamic adjustment of all three to meet changing business needs. Changing one side of the triangle invariably has an impact on at least one of the other sides if not both of them. A comprehensive understanding of business drivers and needs is therefore vital in order that the most effective business solutions are designed and delivered, using the most appropriate balance of these three elements.

It is likely that business drivers and needs will change during design and delivery, due to market pressures. The functionality and resources should be considered for all stages of the service lifecycle, so that services are not only designed and developed effectively and efficiently, but that the effectiveness and efficiency of the service are maintained throughout all stages of its lifecycle.

Due consideration should be given within service design to all subsequent stages within the service lifecycle. Often designers and architects only consider the development of a new service up to the time of implementation of the service into the live environment. A holistic approach to the design of IT services should be adopted to ensure that a comprehensive and integrated solution is designed to meet the agreed requirements of the business. This approach should also ensure that all of the necessary mechanisms and functionality are implemented within the new service so it can be effectively managed and improved throughout its operational life to achieve all of its agreed service targets. A formal, structured approach should be adopted to ensure all aspects of the service are addressed as well as ensure its smooth introduction and operation within the live environment.

## 3.4 IDENTIFYING SERVICE REQUIREMENTS

Service design must consider all elements of the service by taking a holistic approach to the design of a new service. This approach should consider the service and its constituent components and their inter-relationships, ensuring that the services delivered meet the requirements of the business in all of the following areas:

- The scalability of the service to meet future requirements, in support of the long-term business objectives
- The business processes and business units supported by the service
- The IT service and the agreed business requirements for functionality (i.e. utility)
- The service itself and its SLR or SLA (addressing warranty)
- The technology components used to deploy and deliver the service, including the infrastructure, the environment, the data and the applications
- The internally delivered supporting services and components and their associated OLAs
- The externally supplied supporting services and components and their associated underpinning contracts, which will often have their own related agreements and/or schedules
- The performance measurements and metrics required
- The legislated or required security levels
- Sustainability requirements (see section N.7 in Appendix N).

The relationships and dependencies between these elements are illustrated in Figure 3.7.

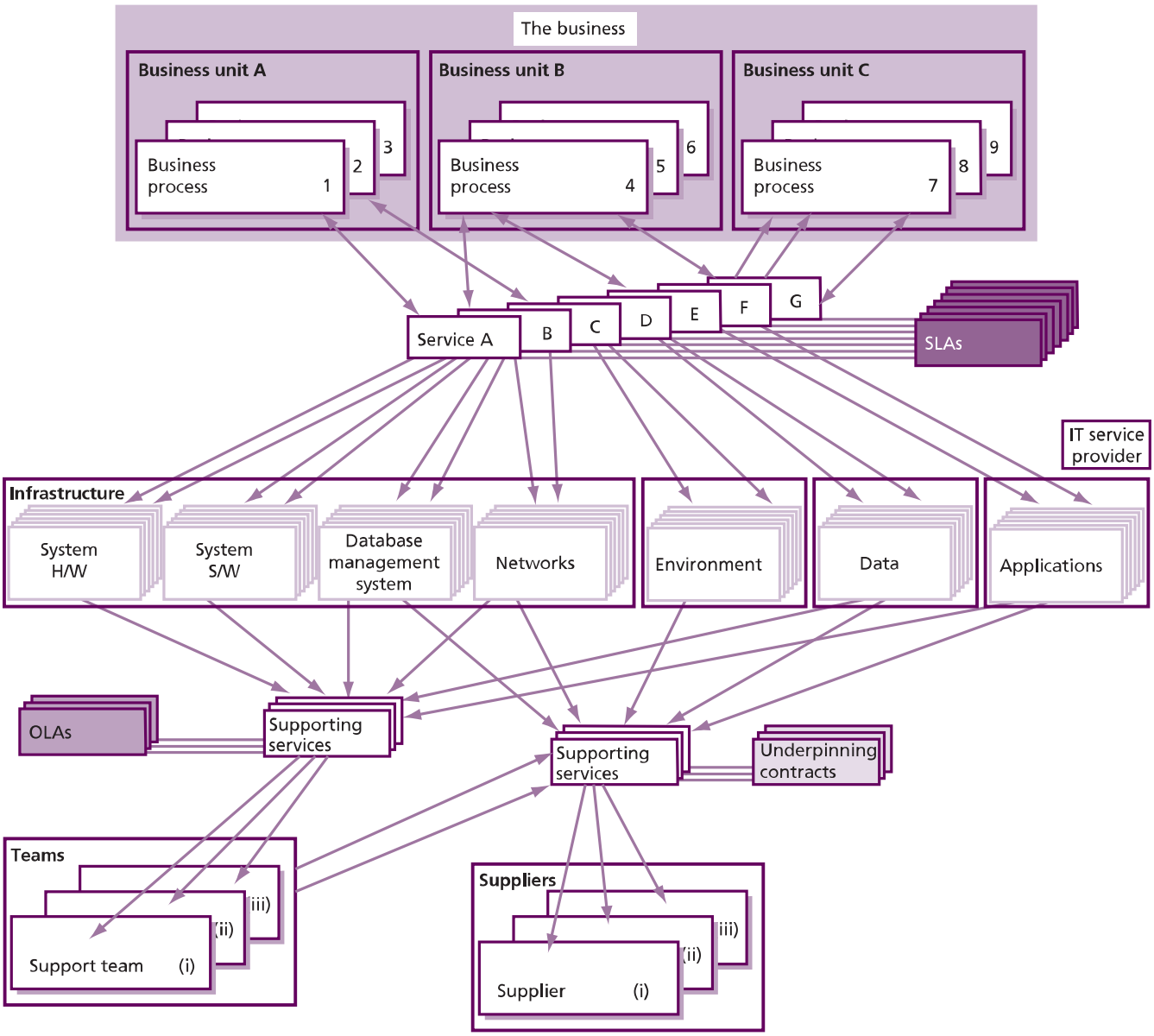



*Figure 3.7 The service relationships and dependencies*

No service can be designed, transitioned and operated in isolation. The relationship of each service to its supporting components and services must be clearly understood and recognized by all people within the service provider organization. It is also essential that all targets contained within supporting agreements, such as OLAs and contracts, underpin those agreed between the service provider and its customers. Some of these concepts are discussed in more detail in later sections with respect to the individual aspects of service design. However, when an individual aspect of a service is changed, all other areas of the service should also be considered to ensure that any amendments necessary to support the change are included in the overall design. Increasingly, services are complex and are delivered by a number of partner or supplier organizations. Where multiple service providers are involved in delivery of a service, it is vital that a central service design authority is established, to ensure services and processes are fully integrated across all parties.

Within the specific area of technology there are four separate technology domains that will need to be addressed, as they are the supporting components of every service and contribute to its overall performance:

- **Infrastructure** The management and control of all infrastructure elements, including mainframes, servers, network equipment, database systems, mass storage systems, systems software, utilities, backup systems, firewalls, development and test environments, management tools etc.
- **Environmental** The management and control of all environmental aspects of all major equipment rooms, including the physical space and layout, power, air conditioning, cabling, physical security etc.
- **Data/information** The management and control of all data and information and its associated access, including test data where applicable
- **Applications** The management and control of all applications software, including both bought-in applications and in-house developed applications software.

## 3.5 IDENTIFYING AND DOCUMENTING BUSINESS REQUIREMENTS AND DRIVERS

IT must retain accurate information on business requirements and drivers if it is to provide the most appropriate catalogue of services with an acceptable level of service quality that is aligned to business needs. Business drivers are the people, information and tasks that support the fulfilment of business objectives. This requires that IT develops and maintains close, regular and appropriate relationships and exchange of information in order to understand the operational, tactical and strategic requirements of the business. The business relationship management process as detailed in *ITIL Service Strategy* plays a vital role in this work. The business information needs to be obtained and agreed in three main areas to maintain service alignment:

- **Information on the requirements of existing services** What changes will be required to existing services with regard to:
  - New facilities/features and functionality requirements (utility)
  - Changes in business processes, dependencies, priorities, criticality and impact
  - Changes in volumes of service transactions
  - Increased service levels and service level targets due to new business drivers, or reduced for old services, lowering priority for those due for replacement (warranty)
  - Business justification, including the financial and strategic aspects
  - Requirements for additional service management information
- **Information on the requirements of new services**:
  - Facilities/features and functionality required (utility)
  - Management information required and management needs
  - Business processes supported, dependencies, priorities, criticality and impact
  - Business cycles and seasonal variations
  - SLRs and service level targets (warranty)
  - Business transaction levels, service transaction levels, numbers and types of users and anticipated future growth
  - Business justification, including the financial and strategic aspects
  - Predicted level of change – for example, known future business requirements or enhancements
  - Level of business capability or support to be provided – for example, local business-based support
- **Information on the requirements for retiring services**:
  - Exact scope of retirement: what facilities/features and functionality are to be retired
  - Business justification, including financial and strategic aspects
  - What, if anything, will replace the retiring service
  - Interfaces and dependencies with other services, components or configurations
  - Disposal and/or reuse requirements for the service assets and configuration items associated with the retiring service
  - Business requirements related to the retirement strategy and plan, such as timing of the retirement and the retirement approach to be used (i.e. phased retirement)
  - Archiving strategy for any business data and any potential access requirements for archived data related to the retiring service.

This collection of information is the first and most important stage for designing and delivering new

services or major changes to existing services. The need for accurate and representative information from the business is paramount. This must be agreed and signed off with senior representatives within the business. If incorrect or misleading information is obtained and used at this stage, then all subsequent stages will be delivering services that do not match the needs of the business. Also, there must be some formal process for the agreement and acceptance of changes to the business requirements, as these will often evolve during the service lifecycle. The requirements and the design must evolve with the changing business environment to ensure that the business expectations are met. However, this must be a carefully managed process to ensure that the rate of change is kept at an agreed and manageable level, and does not 'swamp' and excessively delay the project or its implementation.

In order to design and deliver IT services that meet the needs of the customers and the business, clear, concise, unambiguous specifications of the requirements must be documented and agreed. Time spent in these activities will prevent issues and discussion from arising later with regard to variances from customer and business expectation. This business requirements stage should consist of:

- Appointment of a project manager, the creation of a project team and the agreement of project governance by the application of a formal, structured project methodology
- Identification of all stakeholders, including the documentation of all requirements from all stakeholders and the stakeholder benefits they will obtain from the implementation
- Requirements analysis, prioritization, agreement and documentation
- Determination and agreement of outline budgets and business benefits. The budget must be committed by management because it is normal practice to decide next year's budget in the last quarter of the previous year, so any plans must be submitted within this cycle
- Resolution of the potential conflict between business units and agreement on corporate requirements
- Sign-off processes for the agreed requirements and a method for agreeing and accepting changes to the agreed requirements. Often the process of developing requirements is an iterative or incremental approach that needs to be carefully controlled to manage 'scope creep'
- Development of a customer engagement plan, outlining the main relationships between IT and the business and how these relationships and necessary communication to wider stakeholders will be managed. The development of this plan is typically led by the business relationship management process (see *ITIL Service Strategy*) and done in cooperation with the design coordination process (see section 4.1).

Where service requirements are concerned, they frequently come with a price tag (which might not be entirely known at this stage), so there always needs to be a balance between the service achievable and the cost. This may mean that some requirements may be too costly to include and may have to be dropped during the financial assessment involved within the design process. If this is necessary, all decisions to omit any service requirements from the design of the service must be documented and agreed with the representatives of the business. There is often difficulty when the business requirements and the budget allocated for the solution do not take into account the full service costs, including the ongoing costs throughout its lifecycle.

## 3.6 DESIGN ACTIVITIES

All design activities are triggered by changes in business needs or service improvements. A structured and holistic approach to the design activities should be adopted to ensure consistency and integration is achieved throughout the IT service provider organization, within all design activities. Too often organizations focus on the functional requirements, almost to the exclusion of other important areas such as manageability and operational requirements. A design or architecture by definition needs to consider all design aspects. It is not a smaller organization that combines these aspects, it is a sensible one.

**Key message**

Architectures and designs should be kept clear, concise, simple and relevant. All too often, designs and architectures are complex and theoretical and do not relate to the 'real world'.

The key inputs and outputs of the overall service design stage are described in section 3.12. The following shows more detail regarding these, taking into consideration the range of activity in the stage.

The inputs to the various design activities are:

- Corporate visions, strategies, objectives, policies and plans, business visions, including business continuity plans
- Service management visions, strategies, policies, objectives and plans
- Constraints and requirements for compliance with legislated standards and regulations
- All IT strategies, policies and strategic plans
- Details of business requirements
- All constraints, financial budgets and plans
- The service portfolio
- ITSM processes, risks and issues registers
- Service transition plans (change, configuration and release, and deployment management plans)
- Security policies, handbooks and plans
- The procurement and contract policy and supplier strategy
- The current staff knowledge, skills and capability
- IT business plans, business and IT quality plans and policies
- Service management plans, including service level management plans, SLAs and SLRs, service improvement plan(s) (SIPs), capacity plans, availability plans, IT service continuity plans
- Relevant improvement opportunities from the continual service improvement (CSI) register
- Measurement tools and techniques.

The deliverables from the design activities are:

- Suggested revisions to IT strategies and policies
- Revised designs, plans and technology and management architectures, including:
  - The IT infrastructure and infrastructure management and environmental strategy, designs, plans, architectures and policies
  - The applications and data strategies, designs, plans, architectures and policies
- Designs for new or changed services, processes and technologies, including sourcing strategy (buy or build, or a combination), documented in service design packages
- Process review and analysis reports, with designs for revised and improved processes and procedures
- Designs for revised measurement methods and processes
- Managed levels of risk, and risk assessment and management reports
- Business cases and feasibility studies, together with statements of requirements (SoRs) and invitations to tender (ITTs) (for a description of different types of procurement documents, see Appendix L)
- Revised budgets and service costing
- Comments and feedback on all other plans
- Business benefit and realization reviews and reports.

## 3.7 DESIGN ASPECTS

An overall, integrated approach should be adopted for the design activities documented in the previous section and should cover the five aspects of service design as listed in section 3.1.1 and further explained in section 3.1.3. As a reminder, these five aspects are:

- Service solutions for new or changed services
- Management information systems and tools
- Technology architectures and management architectures
- The processes required
- Measurement methods and metrics.

In addressing the five aspects, the desired business outcomes and planned results should be clearly defined so that what is delivered meets the expectations of the customers and users. This focus on results should be adopted within each of the five aspects to deliver quality, repeatable consistency and continual improvement throughout the organization.

The key aspect is the design of new or changed service solutions to meet changing business needs. Every time a new service solution is produced, it needs to be checked against each of the other aspects to ensure that it will integrate and interface with all of the other services already in existence. These five aspects of service design are covered in more detail in the following sections. The plans produced by service design for the design, transition and subsequent operation of these five different aspects should include:

- The approach taken and the associated timescales
- The organizational impact of the new or changed solution on both the business and IT
- The commercial impact of the solution on the organization, including the funding, costs and budgets required
- The technical impact of the solution and the staff and their roles, responsibilities, skills, knowledge, training and competences required to deploy, operate, maintain and optimize the new solution to the business
- The commercial justification assessment of the impact of the solution on existing business – this impact must be assessed from the point of view of IT and service management processes, including both their capacity and performance
- The assessment and mitigation of risks to services, processes and service management activities
- Communication planning and all aspects of communication with all interested parties
- The impact of the solution on new or existing contracts or agreements

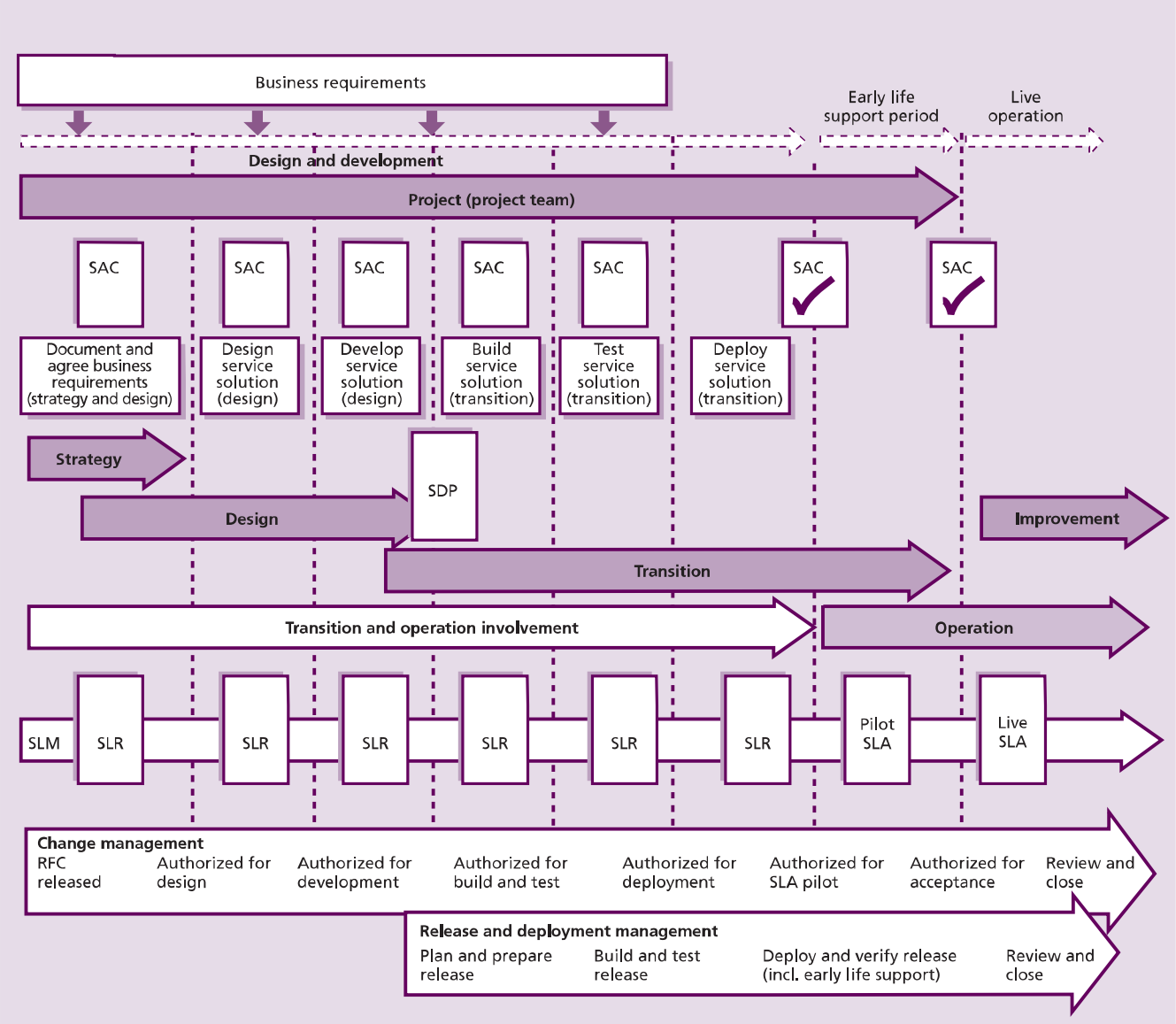



*Figure 3.8 Aligning new services to business requirements*

- The expected outcomes from the operation of the new or changed service in measurable terms, generally expressed within new or existing SLAs, service levels and customer satisfaction
- The production of a service design package (see Appendix A) containing everything necessary for the subsequent testing, introduction and operation of the solution or service
- The production of a set of service acceptance criteria (SAC) (see Appendix B) that will be used to ensure that the service provider is ready to deliver and support the new or changed service in the live environment.

### 3.7.1 Designing service solutions

There are many activities that have to be completed within the service design stage for a new or changed service. A formal and structured approach is required to produce the new service at the right cost, utility (functionality) and warranty and within the right timeframe. An example of such an approach and its constituent stages are illustrated in Figure 3.8, together with the other major areas that will need to be involved along the way. This approach must be iterative/incremental to ensure that the service delivered meets the evolving and changing needs of the business during the business process development and the IT service lifecycle. Additional project managers and project teams may need to be allocated to manage the stages within the lifecycle for the deployment of the new service.

The role of the project team within this activity of delivering new and changing IT services to the business and its relationship to design activities is also illustrated in Figure 3.8.

Figure 3.8 shows the lifecycle of a service from the initial or changed business requirement through the design, transition and operation stages of the lifecycle. It is important that there is effective transfer of knowledge at all stages between the operational staff and the project staff to ensure smooth progression through each of the stages illustrated.

The areas that need to be considered within the design of the service solution should include:

- Analysing the agreed business requirements
- Reviewing the existing IT services and infrastructure and producing alternative service solutions, with a view to reusing or exploiting existing components and services wherever possible
- Designing the service solutions to the new requirements, including their constituent components, in terms of the following, and documenting this design:
  - The facilities/features and functionality required (utility), and information required for the monitoring of the performance of the service or process
  - The business processes supported, dependencies, priorities, criticality and impact of the service, together with the business benefits that will be delivered by the service
  - Business cycles and seasonal variations, and the related business transaction levels, service transaction levels, the numbers and types of users and anticipated future growth, and the business continuity requirements
  - SLRs and service level targets (warranty) and the necessary service measuring, reporting and reviewing activities
  - The timescales involved and the planned outcomes from the new service and the impact on any existing services
  - The requirements for testing, including any user acceptance testing (UAT) and responsibilities for managing the test results
  - Requirements for integration into the overall service management system
- Ensuring that the contents of the SAC are incorporated and the required achievements planned into the initial design
- Evaluating and costing alternative designs, highlighting advantages as well as disadvantages of the alternatives (for detailed information about service economics and service costing, see *ITIL Service Strategy*, sections 3.6 and 4.3)
- Agreeing the expenditure and budgets

- Agreeing the required timelines to complete design, develop, build, test and deploy the service
- Re-evaluating and confirming the business benefits, including the ROI from the service, which further includes identification and quantification of all service costs and all business benefits and increased revenues. The costs should cover the total cost of ownership (TCO) of the service and include start-up costs such as design costs, transition costs, project budget, and all ongoing operational costs including management, support and maintenance
- Agreeing the preferred solution and its planned outcomes and targets (utility and warranty)
- Checking the solution is in balance with all corporate and IT strategies, policies, plans and architectural documents; and if not, revising either the solution or the strategic documentation (taking into account the effect on other strategic documents, services and components) wherever possible reusing or exploiting existing components (e.g. software objects, 'corporate' data, hardware), unless the strategy dictates otherwise. The changing of strategy will involve a significant amount of work and would be done in conjunction with service strategy
- Ensuring that all of the appropriate corporate and IT governance and security controls are included with the solution
- Completing an 'organizational readiness assessment' to ensure that the service can be effectively operated to meet its agreed targets and that the organization has the appropriate capability to deliver to the agreed level. This will include:
  - The commercial impact on the organization from both a business and IT perspective, including all of the business benefits and all of the costs (both one-off project costs and the ongoing annual operation costs) involved in the design, development and ongoing operation and support of the service
  - Assessment and mitigation of the risks associated with the new or changed service, particularly with regard to the operation, security, availability and continuity of the service
  - The business capability and maturity. This activity should be performed by the business itself to ensure that all of the right processes, structure, people, roles, responsibilities and facilities are in place to operate the new service
  - The IT capability and maturity. This should include:
    - The environment and all areas of technology, having considered the impact on existing components of the infrastructure and existing services
    - The IT organizational structure and the roles and responsibilities
    - The IT processes and their documentation
    - The skills, knowledge and competence of the staff
    - The IT management processes and supporting tools
  - The supplier and supporting agreements necessary to maintain and deliver the service
  - The assembly of an SDP for the subsequent transition, operation and improvement of the new or changed service solution.

### 3.7.2 Designing management information systems and tools

The most effective way of managing all aspects of services through their lifecycle is by using appropriate management information systems and tools to support and automate efficient processes. Management information systems themselves are typically part of a larger system or framework of policies, processes, functions, standards, guidelines and tools that are planned and managed together and are used to ensure that the desired objectives are achieved. This larger system or framework is known as a management system and examples include a quality management system, an information security management system, or even the overall service management system.

#### *3.7.2.1 Designing the service portfolio*

The service portfolio is the most critical management information system used to support all processes and describes a provider's services in terms of business value. It articulates business needs and the provider's response to those needs. By definition, business value terms correspond to

market terms, providing a means for comparing service competitiveness across alternative providers. By acting as the basis of a decision framework, a service portfolio either clarifies or helps to clarify the following strategic questions:

- Why should a customer buy these services?
- Why should they buy these services from us?
- What are the pricing or chargeback models?
- What are our strengths and weaknesses, priorities and risks?
- How should our resources and capabilities be allocated?

Ideally the service portfolio should form part of a comprehensive SKMS and be registered as a document in the CMS. Further information on both the CMS and the SKMS is provided within *ITIL Service Transition.*

Once a strategic decision to charter a service is made, this is the stage in the service lifecycle when service design begins architecting the service, which will eventually become part of the service catalogue. The service portfolio should contain information relating to every service and its current status within the organization. It is recommended that the options of status within the service portfolio should include:

- **Requirements** A set of outline requirements have been received from the business or IT for a new or changed service
- **Definition** The set of requirements for the new service are being assessed, defined and documented and the SLR is being produced
- **Analysis** The set of requirements for the new service is being analysed and prioritized
- **Approved** The set of requirements for the new service has been finalized and authorized
- **Chartered** The new service requirements are being communicated and resources and budgets allocated
- **Design** The new service and its constituent components are being designed – and procured, if required
- **Development** The service and its constituent components are being developed or harvested, if applicable
- **Build** The service and its constituent components are being built
- **Test** The service and its constituent components are being tested
- **Release** The service and its constituent components are being released
- **Operational/live** The service and its constituent components are operational within the live environment
- **Retiring** The service is still being delivered in the live environment to legacy customers, but will not be sold to or activated for new customers
- **Retired** The service and its constituent components have been retired.

The service portfolio would therefore contain details of all services and their status with respect to the current stage within the service lifecycle, as illustrated in Figure 2.6.

As part of the design of its service portfolio, each organization should define clear policies regarding the service lifecycle and the relationship between each service status and the service's progression through the sections of the service portfolio. The relationship between service status and portfolio shown in Figure 2.6 illustrates one possible approach. In this example those services within the service portfolio that are of a status between 'chartered' and 'retiring' appear in the service catalogue and are therefore accessible to customers and users.

The design of the service portfolio and its ongoing management should take into consideration these practices:

- Each version of a service should be assigned a number or other unique identifier to assist in clearly monitoring the progress of that version of the service throughout its lifecycle.
- It is preferable that each particular version of a service should only exist in one section of the portfolio at a time, be it service pipeline, service catalogue or retired services.
- Newer versions of a service may be in the pipeline while the current version is in the catalogue, or in the catalogue while an older version is in the retired services.
- If an organization identifies any circumstances in which two different service versions might appropriately exist in the same section of the

portfolio simultaneously, the organization should carefully define the rules governing such circumstances (see example).

- Organizations should define clear and unambiguous policies regarding what conditions are required for each defined service status to be achieved.
- From the 'requirements' status to the 'chartered' status, a service should appear in the service pipeline.
- Once a service achieves the 'operational' status in the live environment, it should appear in the service catalogue.
- Between 'chartered' and 'operational' each organization should make clear and unambiguous policies regarding when a service will move from pipeline to catalogue, based on the organization's desired goals, objectives and uses for the pipeline and catalogue. Many factors may influence these policies, such as the type of service provider, the role of the pipeline and catalogue in customer communications, ease of support by toolsets etc.
- Between 'operational' and 'retired', each organization should have clear and unambiguous policies regarding when a service will move from catalogue to retired services, based on the organization's desired goals, objectives and uses for the catalogue and retired services.
- There should be clear designation of responsibility and accountability for all aspects of a service as it progresses through its lifecycle. It should be clearly defined which person or role has accountability for each version of a service during each status in its lifecycle.

Service strategy and service design personnel, as well as personnel in other important areas such as change management, will need access to all records within the service portfolio. Other members of the service provider organization will have access to a permitted subset of the records within the service portfolio. Although the service portfolio is designed during service design, it is managed during service strategy and beyond through the service portfolio management process. Full details on service portfolio management are discussed in *ITIL Service Strategy*.

**Example of multiple versions**

A large business is migrating from one operating system (OS) to another. Because of the size of the organization and the consequential scope of the migration, the work has to be completed in a phased deployment. The current version of the 'ABC' service in the operational environment cannot function on the new operating system and therefore a new version has been designed and has been transitioned onto the workstations that are part of the first phase of the OS deployment.

As a result, there are now legitimately two different versions of the ABC service in the operational environment, and therefore in the service catalogue, at the same time. The older version may have a different status, such as 'retiring', to reflect the fact that it is gradually being withdrawn from use, but both versions will continue to be valid until the OS deployment is complete.

The service pipeline is a subset of the overall service portfolio, organized into a database or structured document listing all services that are under consideration or development, but are not yet available to customers. The service pipeline provides a business view of possible future services and is part of the service portfolio that is not normally published to customers. The service pipeline contains details of all of the business requirements that have not yet been addressed via services released to the live environment. It is used as a basis for the definition, analysis, prioritization and approval by the ISG and service strategy, of all requests for new or changed services, to ensure that new and changed services are aligned to business requirements. It will principally be used as input to the activities of the service strategy and service design stages of the service lifecycle. It also provides valuable input to the activities of the service transition stage of the lifecycle in determining the services to be released.

The service catalogue is a subset of the overall service portfolio, organized into a database or structured document with information about all live IT services, including those available for deployment. The service catalogue is the only part of the service portfolio published to customers, and is used to support the sale and delivery of IT services. The service catalogue includes information

about deliverables, prices, contact points, ordering and request processes. Details regarding the service catalogue and its management may be found in section 4.2. The service catalogue management process must ensure that all of the details within the overall service portfolio are accurate and up-to-date as the requirement and its new or changed service is migrated into the live environment. This will involve close liaison with all service transition activities.

Retired services are a subset of the overall service portfolio representing those services that are phased out or retired. The retirement of a service must be carefully planned during service design and is managed through service transition. When services are retired, the related knowledge and information is stored in a knowledge base for future use. Retired services are not available to new customers or contracts unless a special business case is made. Such services may be reactivated into operation under special conditions and SLAs that are to be approved by senior management. This is necessary because such services may cost a lot more to support and may disrupt economies of scale and scope. The policies governing the reactivation of a service must be clearly defined and carefully adhered to.

Various elements of the same service can have different statuses at the same time. Otherwise the service portfolio would be unable to support 'incremental and iterative' development. Each organization should carefully design its service portfolio, the content and the access allowed to the content. The content should include:

- Service name
- Service version
- Service description
- Service status
- Service classification and criticality
- Applications used
- Data and/or data schema used
- Business processes supported
- Business owners
- Business users
- IT owners
- Warranty level, SLA and SLR references
- Supporting services
- Supporting resources
- Dependent services
- Supporting OLAs, contracts and agreements
- Service costs
- Service charges (if applicable)
- Service revenue (if applicable)
- Service metrics.

The service portfolio is the main source of information on the requirements and services and needs to be very carefully designed to meet all the needs of all its users. The design of the service portfolio needs to be considered in the same way as the design of IT services themselves to ensure that it meets all of these needs. This approach should also be used for all of the other service management information systems, including the:

- SKMS
- CMS
- Capacity management information system (CMIS)
- Availability management information system (AMIS)
- Security management information system (SMIS)
- Supplier and contract management information system (SCMIS).

### 3.7.3 Designing technology architectures and management architectures

The architectural design activities within an IT organization are concerned with providing the overall strategic blueprints for the development and deployment of an IT infrastructure that will satisfy the current and future needs of the business. Although these aspects underpin the delivery of quality IT services, they alone cannot deliver quality IT services, and it is essential that the people, process and partner/supplier aspects surrounding these technological components (products) are also considered.

'Architecture' is a term used in many different contexts. In this context it can be described as the fundamental organization of a system, embodied in its components, their relationships to each other and to the environment, and the principles guiding its design and evolution. 'System' is used in the most general, not necessarily IT, sense to mean a collection of components organized to accomplish a specific function or set of functions.

So the system could be, for example, a whole organization, a business function, a product line or an information system. Each of these

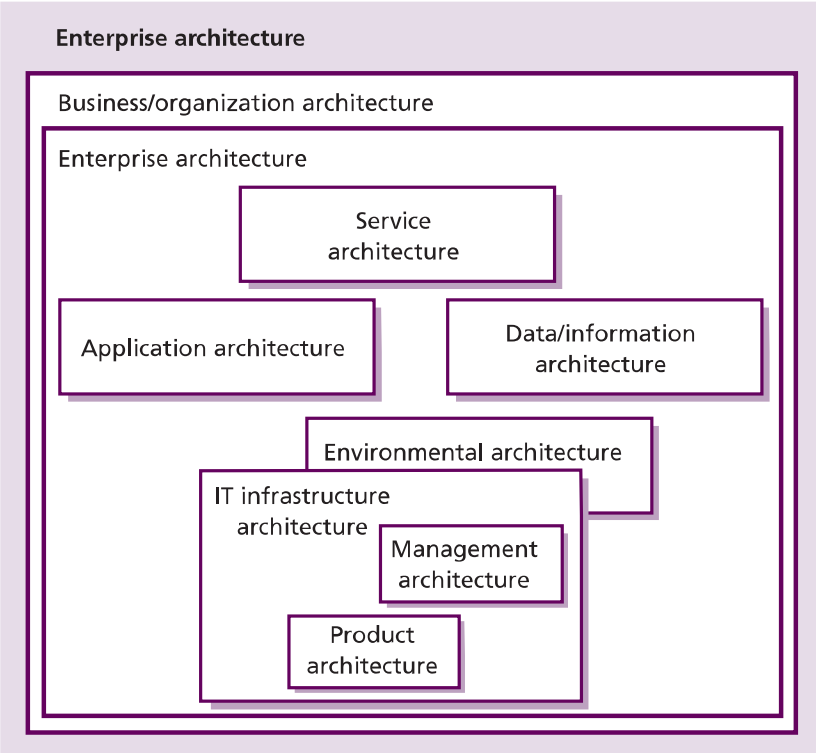



*Figure 3.9 Enterprise architecture*

systems will have an 'architecture' made up of the components of the system, the relationships between them (such as control interfaces and data exchanges), the relationships between the system and its environment (political, organizational, technological etc.) and the design principles that inform, guide and constrain its structure and operation, as well as its future development.

In essence, 'architectural design' can be described as the development and maintenance of IT policies, strategies, architectures, designs, documents, plans and processes for the deployment and subsequent operation and improvement of appropriate IT services and solutions throughout an organization.

The work of architectural design needs to assess and reconcile many types of needs, some of which may be in conflict with one another. The work should ensure that:

- The IT infrastructures, environments, data, applications and external services serve the needs of the business, its products and services. This activity not only includes the technology components but also their management.
- The right balance is struck between innovation, risk and cost while seeking a competitive edge, where desired by the business.
- There is compliance with relevant architectural frameworks, strategies, policies, regulations and standards.
- A coordinated interface is provided between IT designers and planners, strategists, business designers and planners.

The architectural design activities should use input from the business, service strategy, its plans, designers and planners to develop appropriate designs, plans, architectures and policies for all areas of IT. These designs, plans, architectures and policies should cover all aspects of IT, including roles and responsibilities, services, technology, architecture and frameworks, processes and procedures, partners and suppliers, and management methods. The work of architectural design must also cover all areas of technology, including the infrastructure, environment, applications and data, and it should be closely linked to the overall business planning and design processes.

Any enterprise is a complex system, with many types of component, such as its staff, business functions and processes, organizational structure and physical distribution, information resources and information systems, financial

**Table 3.1 Enterprise architecture frameworks**

| Full framework name | Framework abbreviation |
|---|---|
| Architecture of integrated information systems framework | ARIS |
| Bredemeyer framework | Bredemeyer |
| Business transformation enablement programme transformation framework | BTEP |
| Department of Defense architecture framework | DODAF |
| CSC catalyst | Catalyst |
| Computer integrated manufacturing open systems architecture | CIMOSA |
| Enterprise architecture framework | Gartner |
| Enterprise architecture planning | EAP |
| Extended enterprise architecture framework | E2AF |
| Federal Enterprise Architecture (FEA) reference models | FEA |
| Generalized enterprise reference architecture and methodology | GERAM |
| Integrated architecture framework | IAF |
| Pillars of Enterprise Architecture (EA) | Forrester |
| Reference model for open distributed processing | RM-ODP |
| Technical architectural framework for information management | TAFIM |
| Treasury enterprise architecture framework | TEAF |
| The Open Group Architecture Framework (TOGAF®) technical reference model | TOGAF |
| Zachman framework | Zachman |

and other resources including technology, and the strategies, plans, management, policies and governance structures that drive the enterprise. An enterprise architecture should show how all these components (and others) are integrated in order to achieve the business objectives, both now and in the future.

The complete enterprise architecture can be large and complex. Here we are interested in those architectures concerned with the business of the organization and the information systems that support it. Each of these architectures calls on distinct architectural disciplines and areas of expertise, as illustrated in Figure 3.9.

Enterprise architecture is defined by Gartner[4] as:

*'The process of translating the business's vision and strategy into effective enterprise change by creating, communicating and improving key requirements, principles and models that describe the enterprise's future state and enable its evolution toward it.'*

There are many proprietary and non-proprietary frameworks for the development of an enterprise architecture, as illustrated in Table 3.1.

These frameworks include descriptions of the organizational structure, business processes, planning and control systems, management and governance mechanisms, policies and procedures of the enterprise. They show how these components interoperate and contribute to the achievement of business goals and objectives, and provide the basis for identifying the requirements for information systems that support these business processes.

4 Basualdo, Militza (2010). Business value through enterprise architecture. Executive Programs Road Notes, Gartner.

The enterprise architecture should be an integrated element of the business architecture and should include the following major areas (Figure 3.10):

- **Service architecture** This translates applications, infrastructure, organization and support activities into a set of services. The service architecture provides the independent, business integrated approach to delivering services to the business. It provides the model for making a distinction between the service architecture, the application architecture, the data architecture and the infrastructure architecture. It also provides fault tolerance, future proofing and security controls. This means that, potentially, changes occurring within any technology architectures will be transparent to the users of the service – for example, web-based self-service delivery mechanisms. It should include not just the services themselves and their overall integration, but also the management of those services.
- **Application architecture** This provides a blueprint for the development and deployment of individual applications, maps business and functional requirements onto applications, and shows the inter-relationships between applications. Emerging application architectures are likely to be component-based. Such an approach maximizes reuse and helps to maintain flexibility in accommodating changes in sourcing policy.
- **Data/information architecture** This describes the logical and physical data assets of the enterprise and the data management resources. It shows how the information resources are managed and shared for the benefit of the enterprise. A strategy on centralized versus distributed data

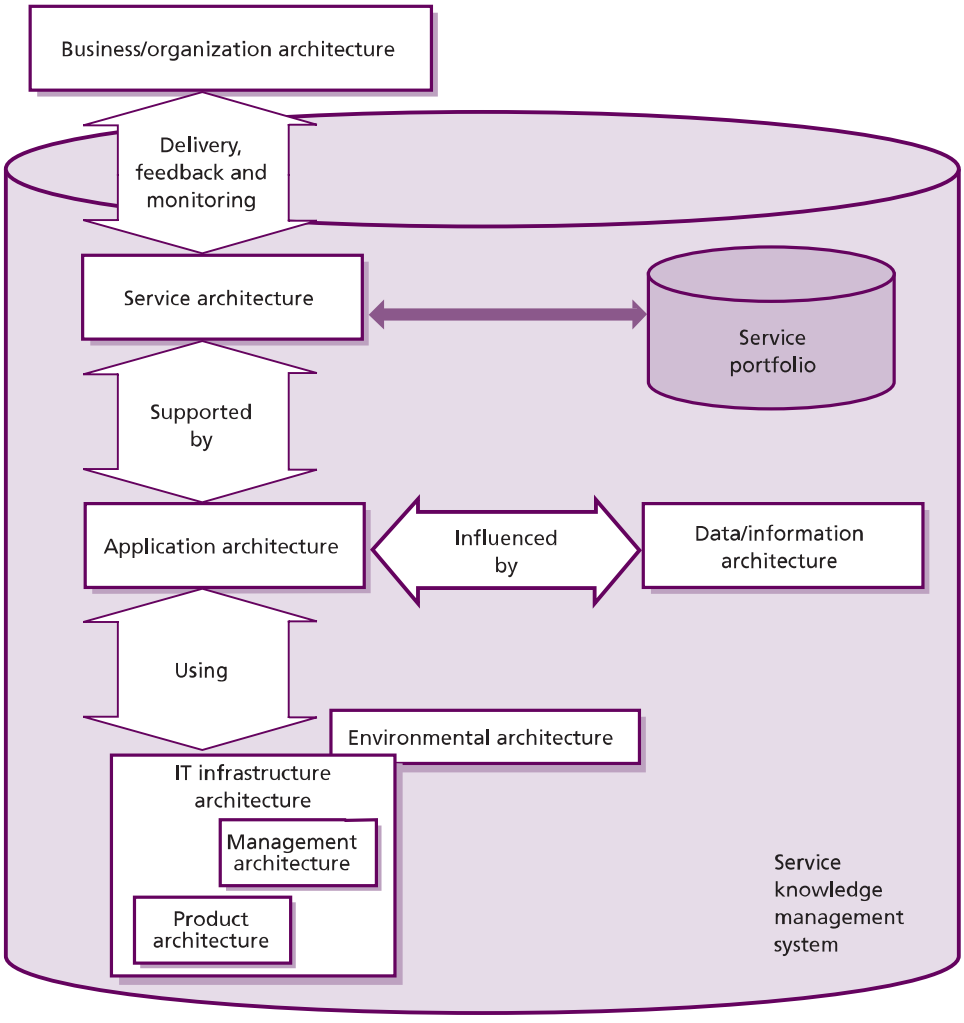



*Figure 3.10 Architectural relationships*

will almost certainly have been devised as part of such an architecture. The data/information architecture will include consideration of data warehousing technologies that facilitate the exploitation of corporate information assets. It will increasingly cover content management and the facilities for delivery of information over multiple channels.

- **IT infrastructure architecture** This describes the structure, functionality and geographical distribution of the hardware, software and communications components that underpin and support the overall architecture, together with the technical standards applying to them. This should also include:
  - A 'product architecture' that describes the particular proprietary products and industry standards that the enterprise uses to implement the infrastructure in conformance with the IT infrastructure architecture principles
  - A 'management architecture' consisting of the management tools used to manage the products, processes, environments etc.
- **Environmental architecture** This describes all aspects, types and levels of environment controls and their management. An illustration of the type of environmental information required is included in Appendix E (see also section N.7 in Appendix N).

The relationships between these architectural perspectives can be seen in Figure 3.10. The development, documentation and maintenance of business and IT architectures will typically form part of the processes of strategic thinking and strategy development in the organization.

Within the framework described earlier, it is possible to identify (at least) three architectural roles. These could all report to a senior 'enterprise architect' in the organization:

- **Business/organizational architect** Concerned with business models, business processes and organizational design – the structural and functional components of the organization and their relationship, and how the business functions and activities of the organization are distributed among them; also the governance of the organization and the roles and responsibilities required
- **Service architect** (often separate roles of applications architect and information/data architect) Concerned with the service, data and application architectures – the logical architectures supporting the business and the relationships between them
- **IT infrastructure architect** Concerned with the physical technology model, the infrastructure components and their relationships, including choices of technologies, interfaces and protocols, and the selection of products to implement the infrastructure.

In some organizations, the roles of business/organizational architect, information systems architect (or possibly separate roles of applications architect and data architect) and IT infrastructure architect will be separate functions. In others, some or all of the roles may be combined. The roles may reside in separate parts of the organization or even outside it. For example:

- The business/organizational architect role may reside within the business strategy and planning function in the corporate headquarters.
- The service architect role may form part of an internal function with responsibility for handling relationships between the business, external suppliers and IT partners relating to service issues. A key responsibility of such a function is the maintenance of the service architecture. This function may be within an IT function or within the business side of an organization.
- The IT infrastructure architect role may reside with the service provider/partner who is responsible for producing the IT infrastructure architecture used for the delivery of IT services to the organization.

If the necessary architectures are in place, then the role of service design is affected in the following ways:

- It must work within the agreed architectural framework and standards
- It will be able to reuse many of the assets created as part of the architecture
- It should work closely with all three architectural roles to ensure maximum benefit from the work done in creating the architecture.

If architecture design is to be accomplished effectively and economically, the documents,

processes and activities of the business and architectural design should be closely coordinated and synchronized. A list of these design documents and their content is contained in Appendices C and D. The individual details of technology included within architectural design are considered in the following sections.

**Key message**

The real benefit and return on investment of the enterprise architecture comes not from the architecture itself, but from the ability of an organization to design and successfully implement projects and solutions in a rapid and consistent manner.

#### *3.7.3.1 Technology management*

A strategic approach should be adopted with regard to the planning of an information technology and its management. This implies creating 'architectures' or 'blueprints' for the long-term framework of the technology used and planned. IT planners, designers and architects need to understand the business, the requirements and the current technology in order to develop appropriate IT architectures for the short, medium and long term. Technology design also needs to take account of the likely IT services that it will underpin, or at least the types of service from an understanding of the business and its future direction, because the business will demand IT services and it will need an appropriate technology to provide and deliver those services. If it is possible to provide a longer-term technology, which can underpin a number of IT services, then taking a strategic approach will provide benefit in the longer term.

Architectures need to be developed within the major areas of technology.

*Technology architectures*

Architectures are needed in all areas of information technology. Where relevant they need to be developed in the following areas:

- Applications and systems software
- Information, data and database, including information security and confidentiality, data warehousing and data mining
- Infrastructure design and architecture:
  - Central server, mainframe architectures, distributed regional servers, including local file and print servers
  - Data networks (LANs, MANs, WANs, VPNs, protocols etc.), internet, intranet and extranet systems
  - Converged network technologies, including voice networks (PABXs, Centrex, handsets, mobiles, faxes etc.)
  - Client systems (desktop PCs, laptop PCs, mobile access devices (hand-held devices, mobile phones, palmtops, PDAs, scanners etc.)
  - Storage devices, storage area networks (SANs), network-attached storage (NAS) including backup and recovery systems and services (servers, robots etc.)
  - Document storage, handling and management
  - Specialist areas of technology such as EPOS, ATMs, scanning devices, GPS systems etc.
- Environmental systems and equipment, including their monitoring and management.

This will result in a hierarchy of architectures, which will need to be dovetailed to construct an integrated set of technology architectures for the organization. The infrastructure architecture should aim to provide relatively few standardized platforms for hosting applications. It must also lay down standards for application architectures that are to be hosted in controlled data centres so that these fit in with the standardized operating, monitoring and security requirements.

*Management architectures*

IT must manage costs, deliver the right services at the right time, secure information assets, provide dependable service and lead the business in leveraging technologies. This requires automated procedures and management tools in order to achieve this effectively and efficiently. The selection of an appropriate management architecture is key to establishing the required level of control and automation. There are two separate approaches to developing a management architecture.

- **Selecting a proprietary management architecture** This is based on selecting a single set of management products and tools from a single proprietary management solutions supplier. This approach will normally require less effort, will support and integrate within an

overall tool architecture, but will often mean that compromises will have to be made with management functionality and facilities, which may result in gaps.

- **Selecting a 'best of breed' architecture** This approach involves the selection of a set of 'best of breed' management tools and products from a number of management solutions suppliers and then integrating them to provide a comprehensive management solution. Although this will generally require more effort in the integration of the tools into a single comprehensive management solution, it will often provide greater management functionality and facilities, leading to long-term cost savings.

The challenges for IT management are to coordinate and work in partnership with the business in the building of these management solutions, supporting the appropriate processes and providing the required measurements and metrics. This has to be achieved while reducing or optimizing the costs involved, particularly the annual, ongoing costs. The best way of minimizing costs is to design cleverly and carefully – for example, making best use of capacity so that additional capacity is not unnecessarily bought (with its associated ongoing costs) – or designing a backup/recovery solution that does not require a complete additional set of infrastructure. Considerable costs can be saved by intelligent and careful design, using technology that is supportable and causes few problems in the operational environment.

The main method of realizing these goals is to design solutions that give a reduction in the overall network management and support costs, while maintaining or even improving the quality of service delivered to the business.

To gain the greatest benefit from the use of the four Ps, organizations should determine the roles of processes and people, and then implement the tools to automate the processes, facilitating people's roles and tasks. The best way of achieving this is to develop a model or architecture based on these principles. This architecture should facilitate the implementation of a set of integrated tools and processes that support 'end-to-end' management of all areas of the technology used, ensuring that there are no gaps and no 'technical silos'.

However, IT faces a big challenge in developing and maintaining the soft skills required to perform these management roles and processes effectively. In truly efficient organizations, these roles and processes are aligned to those of the business. This ensures that the business and IT management processes and information have similar targets and goals. However, all too often, organizations devote insufficient time and effort to the development of the soft skills (for example, interpersonal skills, communication skills, meeting skills) necessary for the processes and the business alignment to be effectively achieved.

There are five areas that need to be considered with regard to the design of a management architecture. The relationships between these architectural perspectives is illustrated in Figure 3.11. The development, documentation and maintenance of business and IT architectures will typically form part of the processes of strategic thinking and strategy development in the organization.

These five management areas to be considered can be briefly defined as:

- **Business** The needs, requirements, processes, objectives and goals of the business units and managers within the organization
- **People** The scope, tasks and activities of the managers and staff involved in the management of the provision of IT services
- **Processes** The processes and procedures used to manage IT services to the business and its customers
- **Tools** The management and support tools required to effectively manage the IT infrastructure
- **Technology** The IT products and technology used to deliver the service and information to the right person, in the right place at the right time.

Such an architecture can be used to design and implement efficient, effective and integrated management solutions that are aligned to the business requirements of the organization and its business managers. This management architecture can be applied within an organization to (see also Figure 3.11):

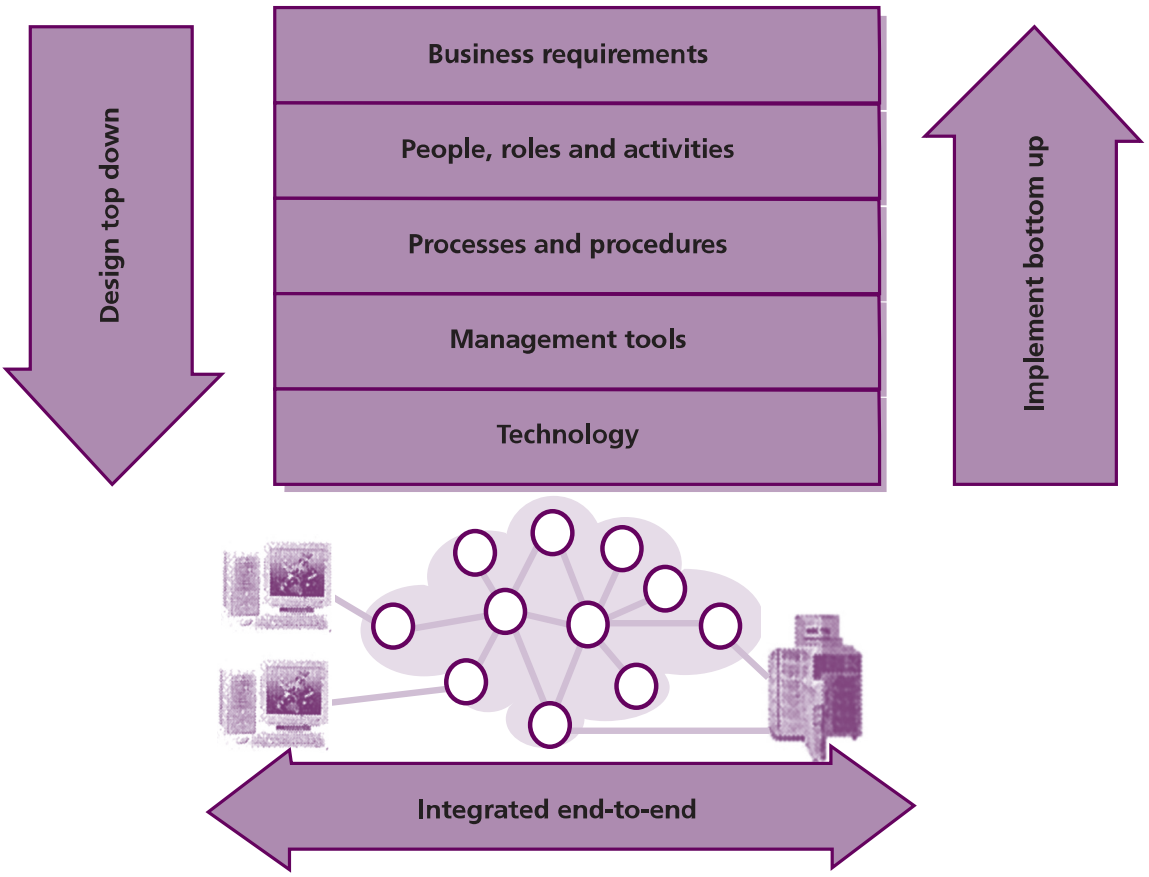



*Figure 3.11 Integrated business-driven technology management*

- Design from the top down, ensuring that the service management and technology management processes, tools and information are aligned with the business needs and goals
- Implement from the bottom up, ensuring that efficient and effective service management and technology management processes are fully integrated with the tools and technology in use within the organization
- Integrate processes and tools, ensuring greater exploitation of tools in the management and support of technology and end-to-end processes.

The key to the development of a management architecture is to ensure that it is driven by business needs and not developed for IT needs in isolation.

**Key message**

Management architectures need to be business-aligned, not technology-driven.

Within this overall structure, a management architecture is needed that can be applied to all areas of IT management and not just to individual isolated areas. This can then be implemented in a coordinated programme of inter-working, to provide overall end-to-end enterprise management so essential to the effective management of today's IT infrastructure. If only individual areas buy into the architecture, individual 'islands of excellence' will develop, and it will be impossible to provide the complete end-to-end solutions required to support today's e-business solutions.

As well as ensuring that all areas of the IT are integrated, it is vital that the management architecture is developed from the business and service perspectives (i.e. 'top down'). Therefore, the key elements to agree and define before developing the management architecture are:

- Management of the business processes: What are the business processes and how do they relate to network and IT services and components?

- Management of service quality: What is service quality? How and where will it be measured?

These are the key elements that need to be determined by senior level management and IT management. They provide crucial input to the development of business-focused management architectures. All too often management tools and processes have been focused on components and component management rather than services and business processes. This needs to be changed, with emphasis clearly on the design of management systems, processes and tools that are driven by business needs and are focused on the management of business processes and IT services. Appropriate design and implementation of management architecture will allow service management processes to focus on managing services and service quality and operate from end to end across the entire IT enterprise, providing true enterprise service management. This will truly facilitate the management of services to ensure that services and service quality are closely aligned to the needs of the business.

The architectures described suggest that the future of network and systems management will be less focused on the technology and become more integrated with the overall requirements of the business and IT management. These new systems and processes are already starting to evolve as the management standards for the exchange of management information between tools become more fully defined by organizations such as the Distributed Management Task Force (DMTF). In essence, management systems will become:

- More focused on business needs
- More closely aligned to business processes
- Less dependent on specific technology and more 'service-centric'
- More integrated with other management tools and processes as the management standards evolve. This will involve the integration of systems management, operational management and service management tools and processes, with fewer 'technology silos' and 'islands of excellence'
- Part of end-to-end management systems and processes, more focused on provision of quality and customer services
- More flexible. There will be a move away from some of the more rigid, single-supplier frameworks to a more open 'best-of-breed' approach.

### 3.7.4 Designing processes

This section provides a general introduction to process theory and practice, which is the basis for the design of ITIL processes that are used in the service lifecycle. A process model enables understanding and helps to articulate the distinctive features of a process.

A process is a structured set of activities designed to accomplish a specific objective. A process takes one or more inputs and turns them into defined outputs. A process includes all of the roles, responsibilities, tools and management controls required to reliably deliver the outputs. A process may also define or revise policies, standards, guidelines, activities, processes, procedures and work instructions if they are needed.

Process control is the activity of planning and regulating a process, with the objective of performing a process in an effective, efficient and consistent manner. As mentioned in Chapter 2, processes, once defined, should be documented and controlled. Once under control, they can be repeated and become manageable. Degrees of control over processes can be defined, and then process measurement and metrics can be built into the process to control and improve the process, as illustrated in Figure 2.5.

The generic process elements show data enters the process, is processed, is output and the outcome is measured and reviewed. This very basic description underpins any process description. A process is always organized around a set of objectives. The main outputs from the process should be driven by the objectives and should always include process measurements (metrics), reports and process improvement.

Each process should be owned by a process owner, who should be accountable for the process and its improvement and for ensuring that a process meets its objectives. The objectives of any IT process should be defined in measurable terms and should be expressed in terms of business benefits and underpinning business strategy and goals. Service design should assist each process owner with the

design of processes, in order to ensure that all processes use standard terms and templates, are consistent and integrate with each other to provide end-to-end integration across all areas.

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 achieves its objectives and can be repeated, measured and managed). If the activities are carried out with a minimum use of resources, the process can also be considered efficient. Process analysis, results and metrics should be incorporated in regular management reports and process improvements.

All these areas should be included within the design of any process. The ITIL publications have been written around 'sets of processes' that reflect the stages in the lifecycle of a service. The service design set of processes detailed in this publication covers the processes closely related to all aspects of design, although in most cases these processes are not limited to service design work only.

Working with defined processes has been the foundation of ITIL from its beginning. By defining what the organization's activities are, which inputs are necessary and which outputs will result from the process, it is possible to work in a more efficient and effective manner. Measuring and steering the activities increases this effectiveness. Finally, by adding norms to the process, it is possible to add quality measures to the output.

This approach underpins the Plan-Do-Check-Act cycle of continual improvement for any quality management system. Plan the purpose of the process in such a way that process actions can be reviewed, assessed or audited for successful achievement and improved.

Norms define certain conditions that the results should meet. Defining norms introduces quality aspects to the process. Even before starting, it is important to think about what the process outcomes should look like. To discover whether or not process activities are contributing optimally to the business goal and the objectives of the process, aligned to business goals, the effectiveness should be measured on a regular basis. Measuring allows comparison of what has actually been done with what the organization set out to do, and to identify and implement improvements within the process.

Each organization should adopt a formalized approach to the design and implementation of service management processes. The objective should not be to design 'perfect processes', but to design practical and appropriate processes with 'in-built' improvement mechanisms, so that the effectiveness and efficiency of the processes are improved in the most suitable manner for the organization. Documentation standards, processes and templates should be used to ensure that the processes are easily adopted throughout the organization. Some example process documentation templates are included in Appendix C.

The goal for now and in the future is to design processes and support these with tools that can provide integration between organizations. This has now become possible because management tools are providing support of open standards, such as the DMTF, which support the exchange of information based on ITIL concepts, such as incidents, problems and changes with standard formats and contents. This allows service providers to support efficient and effective process interfaces with their main suppliers with automated exchange of key operational information in real time.

#### *3.7.4.1 Designing roles – the RACI model*

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.

A key characteristic of a process is that all related activities need not necessarily be limited to one specific organizational unit. Service asset and configuration management process activities, for example, can be conducted in departments such as computer operations, system programming, application management, network management, systems development and even non-IT departments such as procurement, warehouse or accounting. Since services, processes and their component

activities run through an entire organization, the individual activities should be clearly mapped to well-defined roles. The roles and activities are coordinated by process managers. Once detailed procedures and work instructions have been developed, an organization must map the defined roles and the activities of the process to its existing staff. Clear definitions of accountability and responsibility are critical success factors (CSFs) for any improvement activity. Without this, roles and responsibilities within the new process can be confusing, and individuals will revert to 'the way we've always done it' before the new procedures were put in place.

To help with this task 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.

Occasionally an expanded version of RACI is used, called RACI-VS, with two further roles as follows:

- **Verifies** The person or group that checks whether the acceptance criteria have been met
- **Signs off** The person who approves the V decision and authorizes the product handover. This could be the 'A' person.

A third variation of the RACI model is RASCI, where the S represents Supportive. This role provides additional resources to conduct the work, or plays a supportive role in implementation, for example. This could be beneficial for IT service implementation.

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.

The RACI chart in Table 3.2 shows the structure and power of RACI modelling. The rows represent a number of required activities and the columns identify the people who make the decisions, carry out the activities or provide input.

**Table 3.2 An example of a simple RACI matrix**

| | 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 |

Whether RACI or some other tool or model is used, the important thing is to not just leave the assignment of responsibilities to chance or leave it to the last minute to decide. Conflicts can be avoided and decisions can be made quickly if the roles are allocated in advance.

To build a RACI chart, the following steps are required:

- Identify the processes/activities
- Identify and define the roles
- Conduct meetings and assign the RACI codes
- Identify any gaps or overlaps – for example, where there are multiple Rs or no Rs (see analysis below)
- Distribute the chart and incorporate feedback
- Ensure that the allocations are being followed.

Analysis of a RACI chart to identify weaknesses or areas for improvement should include considering both the role and activity perspectives.

*Role analysis*

Role analysis involves asking:

- Many As: Are duties segregated properly? Should someone else be accountable for some of these activities? Is this causing a bottleneck in some areas that will delay decisions?
- Many Rs: Is this too much for one function?
- No empty spaces: Does this role need to be involved in so many tasks?
- Also, does the type or degree of participation fit this role's qualifications?

*Activity analysis*

Activity analysis can indicate:

- More than one A: only one role can be accountable
- No As: at least one A must be assigned to each activity
- More than one R: too many roles responsible often means that no one takes responsibility. Responsibility may be shared, but only if roles are clear
- No Rs: at least one role must be responsible
- Many Cs: Is there a requirement to consult with so many roles? What are the benefits and can the extra time be justified?
- No Cs and Is: Are the communication channels open to enable people and departments to talk to each other and keep each other up to date?

It is important to understand the distinction between a formal function within an organization and the process roles that the individuals in that function are expected to carry out. Persons within a formal function may fulfil more than one specific service management role and carry out activities relating to more than one process. For example, an individual with the job title of 'network administrator' is responsible for carrying out incident management as well as capacity management activities. Although the network administrator may report to a different functional line manager, they are also responsible for carrying out activities for the service desk function and capacity management process owners.

Developing an authority matrix can be a tedious and time-consuming exercise but it is a crucially important one. The authority matrix clarifies to all involved which activities they are expected to fulfil, as well as identifying any gaps in service delivery and responsibilities. It is especially helpful in clarifying the staffing model necessary for improvement.

Experience teaches us that using an authority matrix helps with two major activities that are often overlooked or hard to identify. One is that all the 'Rs' on a RACI matrix typically represent potential OLA opportunities. The second is that identifying roles that must be kept informed aids in exposing communication and workflow paths. This can be very helpful when defining the communication procedures within CSI activities.

Potential problems with the RACI model include:

- Having more than one person accountable for a process means that in practice no one is accountable
- Delegation of responsibility or accountability without necessary authority
- Focus on matching processes and activities with departments
- Incorrect division/combination of functions; conflicting agendas or goals
- Combination of responsibility for closely related processes, such as incident management, problem management, service asset and

configuration management, change management and release and deployment management. Combining responsibilities can in some cases reduce the checks and balances that support good governance or could overload some persons filling a combined role.

### 3.7.4.2 Processes and RACI

In order to fully understand an authority matrix we must first begin with an example of a process. In this case, we will use the change management process. (For the complete change management process, see section 4.2, *ITIL Service Transition*.) Each of the major activities of the process is then expanded into a detailed flow of specific procedures, tasks and work instructions. As an example, the fifth activity of the change management process – authorize change build and test – is expanded into an authorization model (Figure 3.12). In this example, different levels of change require different change authorization levels, thus the need for assignment of authority to different roles.

Utilizing the change authorization model shown in Figure 3.12, the authorization activity can be expanded into the detailed procedural steps necessary to determine the level at which the change authorization must be granted. Then an example authority matrix is created based on the RACI model to illustrate the linkage between many of the roles we have discussed, the detailed procedures, and the level of responsibility assigned to each role in the successful execution of the procedure and, moving up, the process (see Table 3.3).

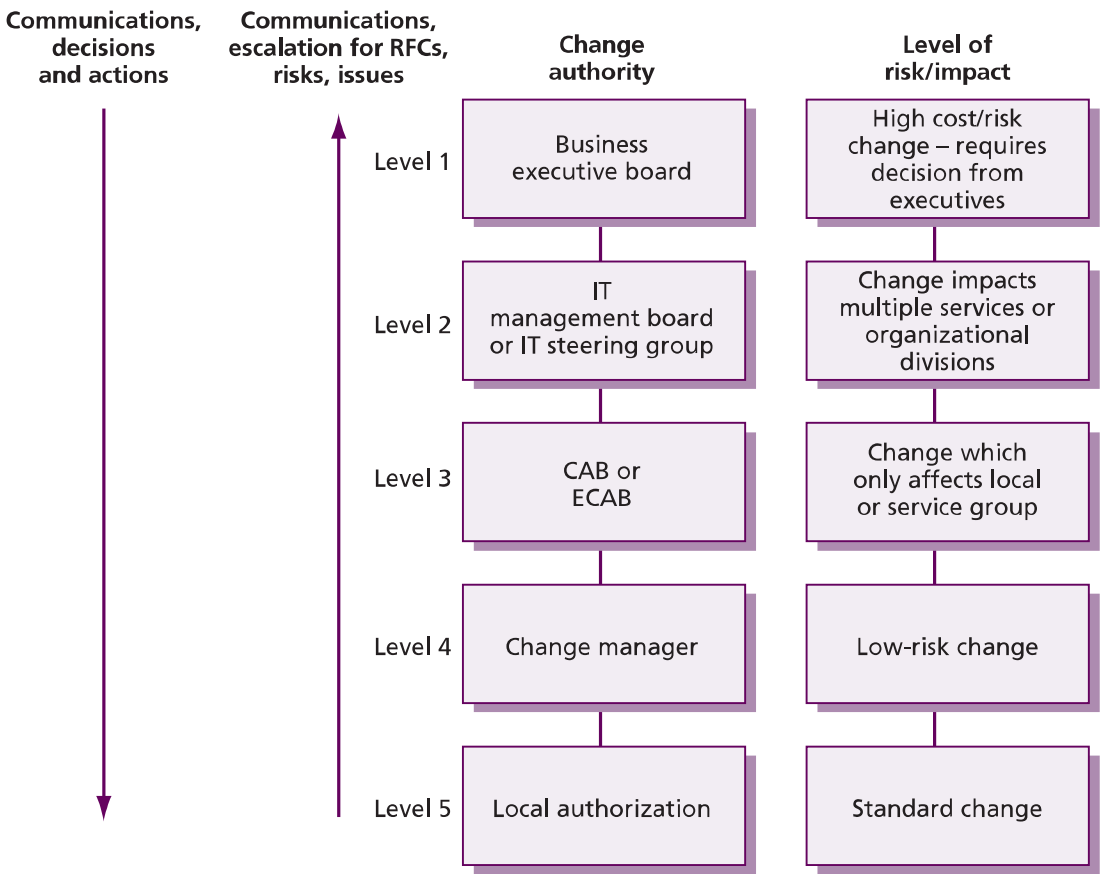



*Figure 3.12 Change management example: change authorization model*

Table 3.3 RACI matrix – sample change management authority matrix based on authorization procedure

| | Process roles | Customer | Change initiator | Service desk | Change manager | Change practitioner | CAB | ECAB | Release and deployment manager | IT management board | Business executive board |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Activity within procedure: | | | | | | | | | | |
| 1.0 | Determine level of risk: | RC | C | C | AR | C | | | | | |
| 1.1 | Level 5 – standard change<br>Local authorization | | C | | AR | RI | | | | | |
| 1.2 | Level 4 – low-risk change<br>Change manager authorization | | C | | AR | RI | | | | | |
| 1.3 | Level 3 – affects only local or service groups<br>RFC to CAB for assessment | | C | | AR | | CI | | | | |
| 1.4 | Level 2 – affects multiple services or organizational divisions<br>RFC to IT management board for assessment | | C | | AR | | C | | | CI | |
| 1.5 | Level 1 – high-cost/high-risk change<br>RFC to business executive board for assessment | | C | | AR | | | | | | CI |
| 2.0 | Endorsed?<br>Yes – go to 2.1<br>No – go to 3.1 | | | | ARI | | I | | | | |
| 2.1 | CAB members estimate impact and resources, confirm priority, schedule changes | | | | A | | R | | C | | |
| 3.0 | Authorized?<br>Not authorized – go to 3.1<br>Authorized – go to 3.2 | I | I | I | A | I | R | | | | |
| 3.1 | RFC rejected and closed<br>(initiator informed with a brief explanation of why it was rejected) | I | I | | A | R | I | I | | | |
| 3.2 | Change is scheduled for action through release and deployment | CI | I | | AR | RC | | | C | | |

Key: R = responsible; A = accountable; C = consulted; I = informed; RFC = request for change; CAB = change advisory board; ECAB = emergency change advisory board

### 3.7.5 Designing measurement methods and metrics

*'If you can't measure it then you can't manage it.'*
Peter Drucker

In order to manage and control processes and services, they have to be monitored and measured. The design of the measurement methods and metrics is one of the five aspects of service design, including designing metrics to manage and control design activities themselves. Measurements and metrics are covered in detail in *ITIL Continual Service Improvement*. This section covers those aspects that are particularly relevant and appropriate to designing the measurement of the quality of processes and their deliverables.

Care should be exercised when selecting measurements and metrics and the methods used to produce them. This is because the metrics and measurements chosen will actually affect and change the behaviour of people working within the activities and processes being measured, particularly where this relates to objectives, personal and team performance and performance-related pay schemes. Therefore only measurements that encourage progression towards meeting business objectives or desired behavioural change should be selected.

In all the design activities, the requirement should be to:

- Design solutions that are 'fit for purpose'
- Design for the appropriate level of quality/warranty – not over-engineered or under-engineered (fit for use)
- Design solutions that are 'right first time' and meet their expected targets
- Design solutions that minimize the amount of 'rework' or 'add-ons' that have to be rapidly developed after solutions have been deployed
- Design solutions that are effective and efficient from the perspective of the business and the customers. The emphasis should be on the solutions that are effective above all and that are efficient within the constraint of remaining effective.

Measurement methods and metrics should reflect these requirements and be designed to measure the ability of processes to match these requirements. All of the measurements and metrics used should reflect the quality and success of the organization's processes from the perspective of the business, customers and users. They need to reflect the ability of the delivered solutions to meet the identified and agreed requirements of the business.

The process measurements selected need to be appropriate for the capability and maturity of the processes being measured. Immature processes are not capable of supporting sophisticated measurements, metrics and measurement methods. There are four types of metrics that can be used to measure the capability and performance of processes:

- **Progress** Milestones and deliverables in the capability of the process
- **Compliance** Compliance of the process to governance requirements, regulatory requirements and compliance of people to the use of the process
- **Effectiveness** The accuracy and correctness of the process and its ability to deliver the 'right result'
- **Efficiency** The productivity of the process, its speed, throughput and resource utilization.

Measurements and metrics should develop and change as the maturity and capability of a process develops. Initially, with immature processes the first two levels of metrics should be used to measure the progress and compliance of the process as it develops in maturity. As the process maturity develops, greater use should be made of effectiveness and efficiency metrics, but not to the detriment of compromising the progress or compliance of the process.

The selection of the metrics, the point of measurement and the methods of measuring, calculating and reporting on the metrics must be carefully designed and planned. The primary metrics should always focus on determining the effectiveness and the quality of the solutions provided. Secondary metrics can then measure the efficiency of the processes used to produce and manage the solution. The priority should always be to ensure that the processes provide the correct results for the business. Therefore the measurement methods and metrics should always provide this business-focused measurement above all.

Too many organizations collect measurements in individual areas, but fail to aggregate them

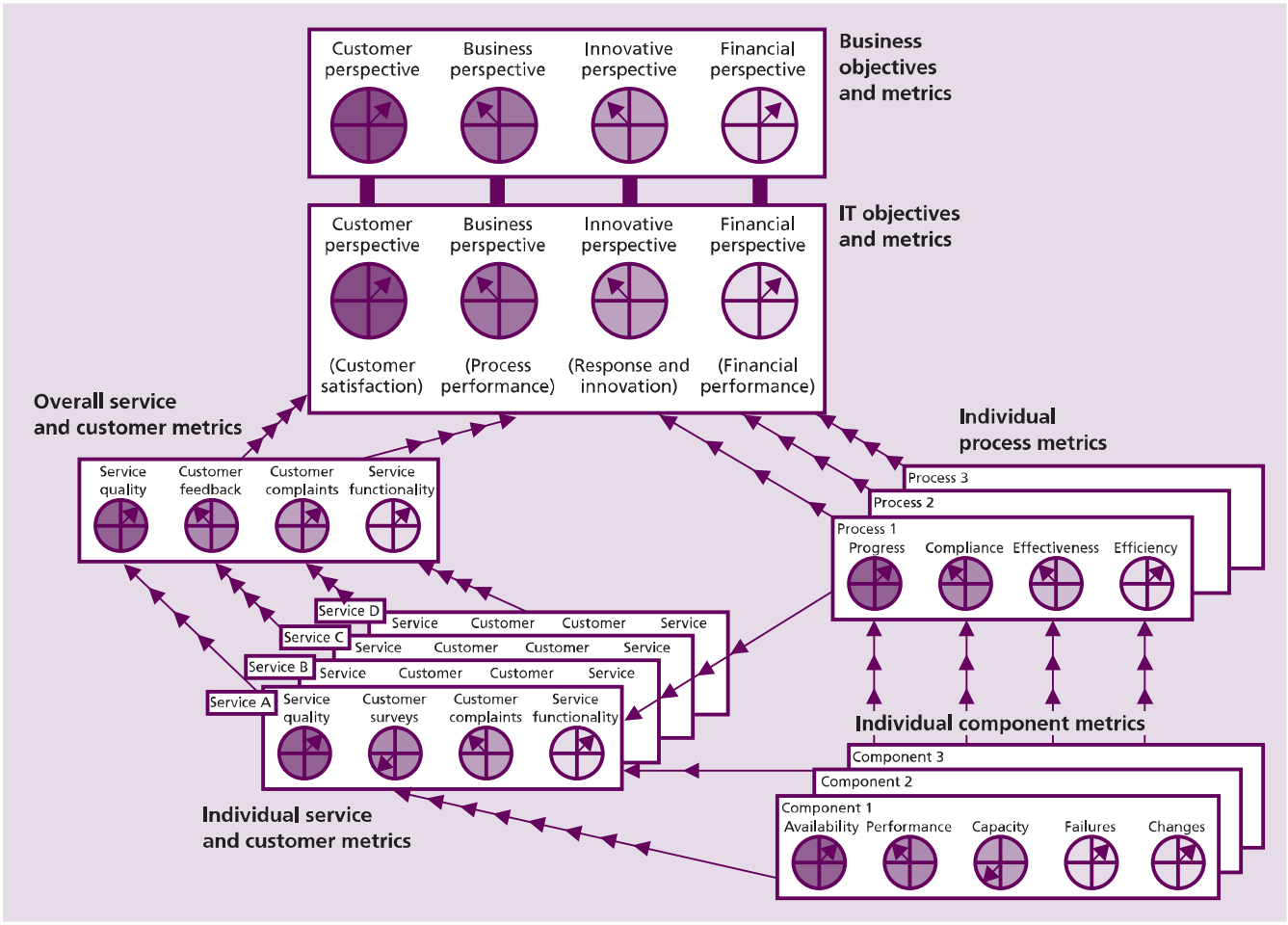



*Figure 3.13 The metrics tree*

together and gain the full benefit of the measurements, and therefore suffer because:

- Measurements are not aligned with business objectives and needs
- There is no overall visibility of the 'top-level' picture
- There are gaps in areas where measurements are not recorded
- Individual areas are well measured and others are poorly measured or are not measured
- There is no consistency in the method, presentation and calculation of the measurements
- Decisions and improvement actions are based on incomplete or inaccurate information.

The most effective method of measurement is to establish a 'metrics tree' or 'key performance indicator (KPI) tree', an approach which employs a hierarchy of metrics to create a comprehensive view at multiple, interconnected levels. Organizations should attempt to develop automated 'metrics tree' measurement systems, such as that illustrated in Figure 3.13.

The tree in Figure 3.13, based on a typical balanced scorecard, uses dials to represent metrics results for each level shown. It is important to note the linkage from the lowest level of the tree of individual component metrics all the way up to objectives and metrics of the business itself. Balanced scorecards represent a management system that enables increasing numbers of organizations to clarify their vision and strategy into action. They provide feedback regarding the internal business processes and external outcomes in order continually to improve strategic performance and results. This enables everybody within the organization to get a picture of the performance of the organization at the appropriate level. The advantages include:

- Business managers and customers can get a 'top-level' business 'dashboard', aligned with business needs and processes.
- Senior IT managers and customers can focus on the top-level IT management dashboard.
- Service owners and customers can focus on the performance of particular services.
- Process owners and managers can view the performance of their processes.
- Technical specialists can look at the performance of individual components.

The dashboard also presents an opportunity to view trends over time, rather than static data, so that potential performance degradation can be identified and rectified at an early stage.

This means that within a hierarchical metrics system, each person in the organization can get access to an appropriate level of information and measurement that suits their particular need. It gives senior management the opportunity to monitor a top-level dashboard to ensure that services continue to be delivered to their agreed levels, and it also provides the capability for technical specialists and process owners to drill down to the detail to analyse variance from agreed service, component or process performance.

Obviously the collection, analysis and presentation of this data can be a very labour-intensive activity and therefore should be automated wherever possible. This can be achieved using analysis tools based on macros, scripts, spreadsheets or preferably on specific web-based solutions. The measurements at each of the levels should be specifically defined to meet the needs of the business, customers and users of the information.

More detailed information on measurements, metrics and measurement methods are contained in *ITIL Continual Service Improvement*.

## 3.8 THE SUBSEQUENT DESIGN ACTIVITIES

Once the desired service solution has been designed, then the subsequent activities must also be completed in the service design stage before the solution passes into the service transition stage.

### 3.8.1 Evaluation of alternative solutions

An additional evaluation stage may be necessary if external supplier services and solutions are involved. This consists of the following:

- Selecting a set of suppliers and completing a tendering process. This will require the production and completion of:
  - Documentation of the scope of the service and production of an SoR and/or a terms of reference document
  - Issuing a request for information, request for proposal, request for quotation and ITT documents as appropriate
  - Producing and agreeing a set of solution and supplier evaluation criteria and a scoring process.
- Evaluation and review of supplier responses and selection of the preferred supplier(s) and their proposed solution(s). This may also involve running trials or even prototyping or proof of concept activities if significant new concepts or technology are involved in the new service in order to ensure that new components meet their expectations.
- Evaluation and costing of the alternative designs, possibly including identification of potential suppliers and evaluation of their alternative proposals, technologies, solutions and contracts. There is a need to ensure that costing covers one-off costs and ongoing costs of operation and ownership, including support and maintenance (for detailed information about service economics and service costing, see *ITIL Service Strategy*, sections 3.6 and 4.3).

### 3.8.2 Procurement of the preferred solution

It is possible that no external elements will be required for the solution. However, this is unusual as suppliers of software are highly likely to be involved. Where external suppliers are involved in the preferred solution, the activities consist of:

- Completing all necessary checks on the preferred supplier
- Finalizing the terms and conditions of any new contracts, ensuring that all corporate policies are enforced
- The procurement of the selected solution.

### 3.8.3 Developing the service solution

The development phase consists of translating the service design into a plan for the development, reuse or redevelopment of the components required to deliver the service and the subsequent

implementation of the developed service. It may need to be developed into a programme of plans if this is a major service change. Each plan or project within the programme will be responsible for delivering one or more components of the service and will include:

- The needs of the business
- The strategy to be adopted for the development and/or purchase of the solution
- The timescales involved
- The resources required, taking into consideration facilities, IT infrastructure and the right personnel skills in order to ensure the delivery service meets the customer's needs
- The development of the service and its constituent components, including the management and other operational mechanisms, such as measurement, monitoring and reporting
- Service and component test plans.

Careful project management will need to be used to ensure that conflict is avoided and that the compatible components are developed from the various development activities.

## 3.9 DESIGN CONSTRAINTS

All design activities operate within many constraints. These constraints come from the business and service strategy and cover many different areas, as illustrated in Figure 3.14.

This means that designers are not always 'free' to design the most desirable solution for the business because it does not fall within the imposed constraints, as illustrated in Figure 3.14. The primary constraints that determine the boundaries of a service solution design are the utility and warranty desired by the customer. The service provider will attempt to fulfil everything requested by the customer in these areas, but other constraints may result in carefully considered compromises. The most obvious additional constraint is the financial one. There may be insufficient budget available for the most appropriate or the preferred solution; therefore a cheaper alternative service would have to be identified and agreed with the business. The designer can only provide the solution that fits within all of the currently known constraints, or else try lifting or renegotiating some of the

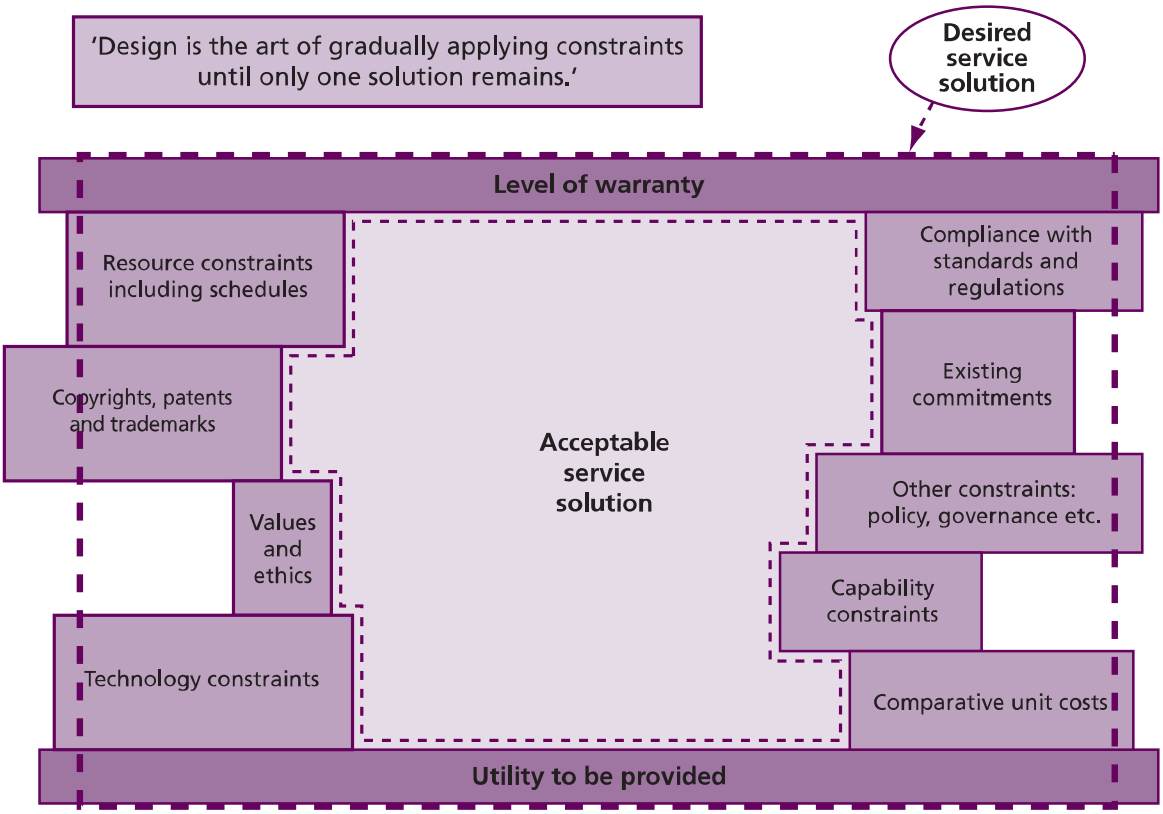



*Figure 3.14 Design constraints driven by strategy*

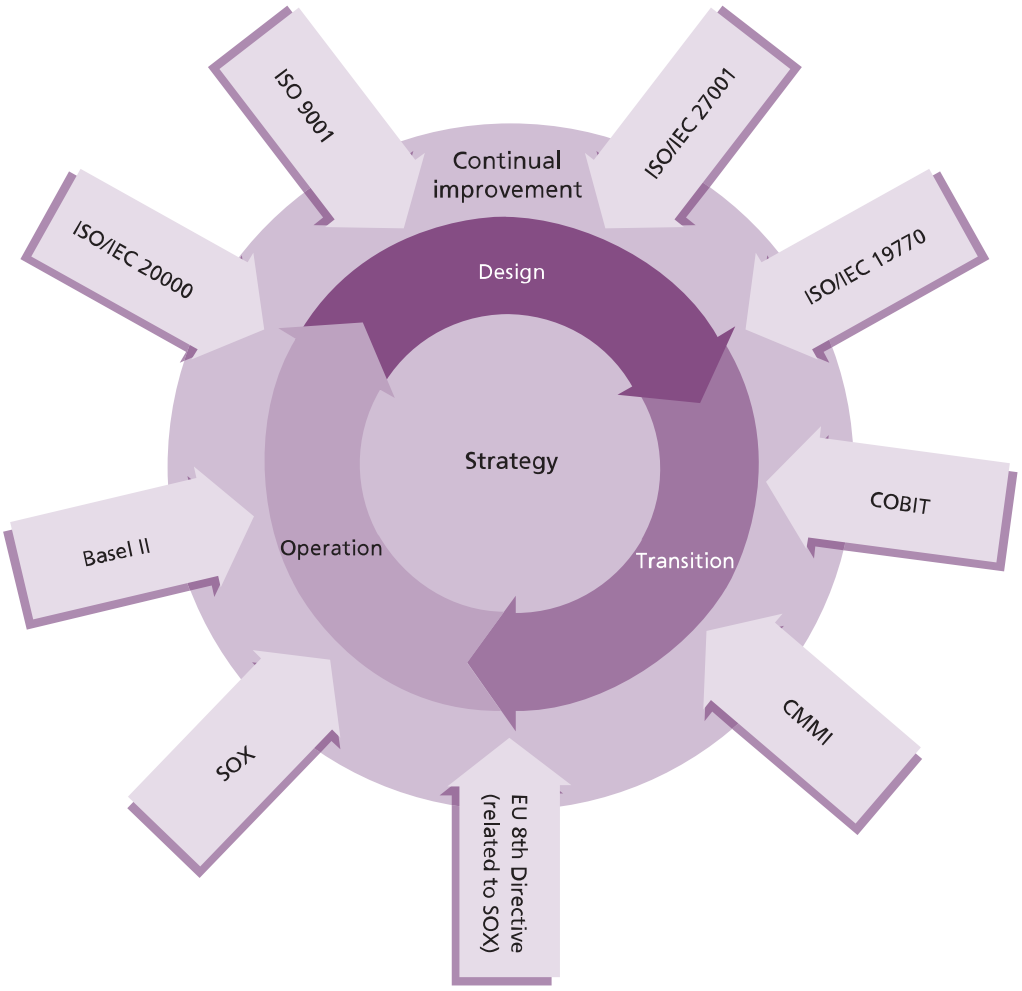



*Figure 3.15 External influences on solution design*

constraints – for instance, by obtaining a bigger budget. The service provider and the customer must both recognize the fact that they are free to design solutions but that they are working in an environment where many external factors can influence the design.

Many of these external influences arise from the need for good corporate and IT governance, and others are from the requirement for compliance with regulations, legislation and international standards, as illustrated in Figure 3.15. It is essential, therefore, that all designers recognize these and ensure that the designs and solutions they produce have all of the necessary controls and capability within them. For more information on some of these external influences see Appendix N.

## 3.10 SERVICE-ORIENTED ARCHITECTURE

It is strongly recommended that business processes and solutions should be designed and developed using a service-oriented architecture (SOA) approach. The SOA approach is considered best practice and is used by many organizations to improve their effectiveness and efficiency in the provision of IT services.

SOA is defined by OASIS (Organization for the Advancement of Structured Information Standards; www.oasis-open.org) as:

*'A paradigm for organizing and utilizing distributed capabilities that may be under the control of different ownership domains. It provides a uniform means to offer, discover, interact with and use capabilities to produce desired effects consistent with measurable preconditions and expectations.'*

OASIS is a not-for-profit, international consortium that drives the development, convergence and adoption of e-business standards. SOA brings value and agility to an organization by encouraging the development of 'self-contained' services that are reusable. This, in turn, promotes a flexible and modular approach to the development of 'shared services' that can be used in many different areas of the business. More and more organizations are converting business processes to common 'packaged services' that can be used and shared by many areas of the business.

Wherever possible, IT service provider organizations should use the SOA approach and principles to develop flexible, reusable IT services that are common and can be shared and exploited across many different areas of the business. When this approach is used, it is essential that IT:

- Defines and determines what a service is
- Understands and clearly identifies interfaces and dependencies between services
- Utilizes standards for the development and definition of services
- Uses common technology and toolsets
- Investigates and understands the impact of changes to 'shared services'
- Ensures that SOA-related training has been planned and achieved for IT staff members in order to establish a common language and improve the implementation and support of the new or changed services.

When SOA principles are used by the IT service provider organization, it is critical that an accurate service catalogue is maintained as part of an overall service portfolio and CMS. Adopting this approach can significantly reduce the time taken to deliver new solutions to the business and to move towards a focus on business outcomes instead of technology. The service catalogue will also show the relationship between services and applications. A single application could be part of more than one service, and a single service could utilize more than one application.

## 3.11 SERVICE DESIGN MODELS

The model selected for the design of IT services will depend mainly on the model selected for the delivery of IT services. Before adopting a design model for a major new service, a review of the current capability and provisions with respect to all aspects of the delivery of IT services should be conducted. This review should consider all aspects of the new service, including the:

- Business drivers and requirements
- Demands, targets and requirements of the new service
- Scope and capability of the existing service provider unit
- Scope and capability of external suppliers
- Maturity of the organizations currently involved and their processes
- Culture of the organizations involved
- IT infrastructure, applications, data, services and other components involved
- Degree of corporate and IT governance and the level of ownership and control required
- Budgets and other resources available
- Staff levels and skills.

This review/assessment provides a structured mechanism for determining an organization's capabilities and state of readiness for delivering new or revised services in support of defined business drivers and requirements. The information obtained from such an assessment can be used in determining the delivery strategy for a particular IT service or IT system. The delivery strategy is the approach taken to move an organization from a known state, based on the readiness assessment, to a desired state, determined by the business drivers and needs. There are many ways to prepare an organization for deploying a new service. The method and strategy selected should be based on the solution the organization chooses for fulfilling its key business drivers, as well as the capabilities of the IT organization and its partners. The scale of options available is quite large, and not every option needs be considered in every case. However, keeping all the options available for consideration is key for designing and operating innovative solutions to the most difficult business challenges. In the end, this may be the difference between a failed project – or even a failed company – and a successful one.

These two models, for the design and delivery of IT services, are closely related and are considered in the following two sections.

**Table 3.4 Main sourcing structures (delivery strategies)**

| Sourcing structure | Description |
|---|---|
| Insourcing | This approach relies on utilizing internal organizational resources in the design, development, transition, maintenance, operation and/or support of new, changed or revised services. |
| Outsourcing | This approach utilizes the resources of an external organization or organizations in a formal arrangement to provide a well-defined portion of a service's design, development, maintenance, operations and/or support. This includes the consumption of services from application service providers (ASPs) described below. |
| Co-sourcing or multi-sourcing | Often a combination of insourcing and outsourcing, using a number of organizations working together to co-source key elements within the lifecycle. This generally involves using a number of external organizations working together to design, develop, transition, maintain, operate and/or support a portion of a service. |
| Partnership | Formal arrangements between two or more organizations to work together to design, develop, transition, maintain, operate and/or support IT service(s). The focus here tends to be on strategic partnerships that leverage critical expertise or market opportunities. |
| Business process outsourcing (BPO) | The increasing trend of relocating entire business functions using formal arrangements between organizations where one organization provides and manages the other organization's entire business process(es) or function(s) in a low-cost location. Common examples are accounting, payroll and call centre operations. |
| Application service provision | Involves formal arrangements with an application service provider (ASP) organization that will provide shared computer-based services to customer organizations over a network from the service provider's premises. Applications offered in this way are also sometimes referred to as on-demand software/applications. Through ASPs, the complexities and costs of such shared software can be reduced and provided to organizations that could otherwise not justify the investment. |
| Knowledge process outsourcing (KPO) | KPO is a step ahead of BPO in one respect. KPO organizations provide domain-based processes and business expertise rather than just process expertise. In other words the organization is not only required to execute a process, but also to make certain low-level decisions based on knowledge of local conditions or industry-specific information. One example is the outsourcing of credit risk assessment, where the outsourcing organization has historical information that they have analysed to create knowledge which in turn enables them to provide a service. For every credit card company to collect and analyse this data for themselves would not be as cost-effective as using KPO. |
| 'Cloud' | Cloud service providers offer specific pre-defined services, usually on demand. Services are usually standard, but can be customized to a specific organization if there is enough demand for the service. Cloud services can be offered internally, but generally refer to outsourced service provision. |
| Multi-vendor sourcing | This type of sourcing involves sourcing different sources from different vendors, often representing different sourcing options from the above. |

### 3.11.1 Delivery model options

Although the readiness assessment determines the gap between the current and desired capabilities, an IT organization should not necessarily try to bridge that gap by itself. There are many different delivery strategies or models that can be used, reflecting how and to what degree the service provider will rely on suppliers. Each strategy has its own set of advantages and disadvantages, but all require some level of adaptation and customization for the situation at hand. Table 3.4 lists the main categories of sourcing structure (delivery strategy) with a short abstract for each. Delivery practices tend to fall into one of these categories or some variant of them.

Table 3.4 highlights a key point: the set of sourcing structures/delivery strategies varies widely and ranges from a relatively straightforward situation, solely managed within the boundaries of a company, all the way to a full KPO situation, or even a multi-vendor approach. This broad range of alternatives provides significant flexibility, but often with added complexity, and in some cases additional risk. Key advantages and disadvantages of each type of strategy are listed in Table 3.5.

All of the above arrangements can be provided in both an offshore or onshore situation. In the onshore case, both organizations are based within the same country/continent, whereas in the offshore situation the organizations are in different countries/continents. Very complex sourcing arrangements exist within the IT industry and it is impossible to cover all combinations and their implications here. Complementary publications in the ITIL series will provide additional guidance on sourcing strategies.

Mergers and acquisitions can also complicate the issues. These situations occur when one company acquires or merges with another company for cash and/or equity swaps of the company's stock. Again, this occurs generally in response to industry consolidations, market expansion, or in direct response to competitive pressures. If companies that have different service delivery strategies are acquired or merge, a period of review and consolidation is often required to determine the most appropriate sourcing strategy for the newly merged organization. However, mergers and acquisitions can often provide organizations with the opportunity to consolidate the best practice from each organization, thereby improving the overall service capability and achieving synergies across the organization. Opportunities will also exist to provide improved career development options to service management personnel and to consolidate supplier contracts for services.

### 3.11.2 Selecting service delivery strategies

The delivery strategies are relevant to both the design and transition stages of the service lifecycle as well as the operation stage. Extreme care must be taken when selecting different strategies for different stages of the lifecycle to ensure that all organizations involved clearly understand their individual roles and responsibilities, and also every other organization's role and responsibility. This must be done to ensure acceptance and handover processes are clearly defined, agreed and accepted.

**Example of response to a merger**

A medium-sized bank merged with another bank that had a complementary product portfolio. The integration of applications, therefore, was simple. However, the two banks felt that consolidation of operations would be beneficial, but could not leverage the economies of scale to a sufficient extent. Outsourcing was also an option, but instead the two banks chose to partner with an outsourcing company. The banks provided the bank-specific knowledge to make their IT services organization an attractive data centre for smaller banks. The outsourcing partner provided the necessary technology expertise and new clients to benefit from the economies of scale.

So how does an organization determine the optimum delivery strategy? There is no single or simple answer to this question. It is too dependent on the unique and specific situation under consideration. For this reason, the most appropriate guidance that can be provided is to describe key advantages and disadvantages of each delivery strategy. This, in turn, can be used as a checklist to determine which delivery approach should be evaluated further and most benefit the specific project or business initiative. Table 3.5 lists each strategy and its key advantages and disadvantages for the delivery of an application or IT service.

A potential disadvantage of any solution using one or more partners is the difficulty and cost of managing an external contributor to service provision. The cost and effort of identifying, establishing, managing and terminating suppliers and contracts should not be overlooked or discounted when determining a strategy.

**Table 3.5 Advantages and disadvantages of sourcing structures (delivery strategies)**

| Sourcing structure | Advantages | Disadvantages |
|---|---|---|
| Insourcing | Direct control<br>Freedom of choice<br>Rapid prototyping of leading-edge services<br>Familiar policies and processes<br>Company-specific knowledge | Scale limitations<br>Cost and time to market for services readily available outside<br>Dependent on internal resources and their skills and competencies |
| Outsourcing | Economies of scale<br>Purchased expertise<br>Supports focus on company core competencies<br>Support for transient needs<br>Test drive/trial of new services | Less direct control<br>Exit barriers<br>Solvency risk of suppliers<br>Unknown supplier skills and competencies<br>More challenging business process integration<br>Increased governance and verification |
| Co-sourcing or multi-sourcing | Time to market<br>Leveraged expertise<br>Control<br>Use of specialized providers | Project complexity<br>Intellectual property and copyright protection<br>Culture clash between companies |
| Partnership | Time to market<br>Market expansion/entrance<br>Competitive response<br>Leveraged expertise<br>Trust, alignment and mutual benefit<br>'Risk and reward' agreements | Project complexity<br>Intellectual property and copyright protection<br>Culture clash between companies |
| BPO | Single point of responsibility<br>'One-stop shop'<br>Access to specialist skills<br>Risk transferred to the outsourcer<br>Low-cost location | Culture clash between companies<br>Loss of business knowledge<br>Loss of relationship with the business |
| ASP | Access to expensive and complex solutions<br>Low-cost location<br>Support and upgrades included<br>Security and ITSCM options included | Culture clash between companies<br>Access to facilities only, not knowledge<br>Often usage-based charging models |
| KPO | Access to specialist skills, knowledge and expertise<br>Low-cost location<br>Significant cost savings | Culture clash between companies<br>Loss of internal expertise<br>Loss of relationship with the business |
| 'Cloud' | Services are easily defined<br>Sourcing is straightforward<br>Mapping between the service and business outcome is relatively straightforward<br>Greater customer control of the service | Internal clouds are still complex<br>Focus on the technology could mask the relationship between IT activities and the business outcome<br>Difficulty coordinating insourced offerings with external cloud services<br>Security of information and assurance of business continuity for services hosted externally |
| Multi-vendor sourcing | Less risk in that the organization is not tied to a single vendor<br>Leverage of specialized skills in different organizations ensures a more complete support model | Could be difficult to coordinate the different vendors' activities and services<br>Requires a very clear understanding of the overall value chain and each vendor's role |

Ultimately, the strategy selected will depend on the capability and needs of the specific organization, its business and people – culture and capabilities. Whichever strategy is selected, its success and operation should be measured and regularly reviewed for effectiveness and efficiency and adapted to fit the changing business needs. The selection adopted with regard to IT service provision can often be influenced by the overall business culture and its approach to outsourcing and partnering.

### 3.11.3 Design and development approaches

It is also important to understand the current generic lifecycle types, methods and approaches to IT service development, in order to decide on standards for the service design stage of the lifecycle. To achieve this, a good understanding is needed of the following aspects of the various service development lifecycle (SDLC) approaches:

- The structure (e.g. milestones/stages/phases)
- The activities (e.g. the workflows or detailed steps/tasks described within an approach)
- The primary models associated with the chosen method, typically giving a process perspective, a data perspective, an event perspective and, often, a user perspective. Examples include use case diagrams, class diagrams and state chart diagrams from the unified modelling language (UML).

For more detail on SDLC, see Chapter 5.

#### *3.11.3.1 Rapid application development*

It is necessary to understand the differences between object-oriented and structured systems development, the basic principles of the 'agile' movement, and to recognize how a commitment to a software package solution changes the structure of the approach. Some of the most well-known terms in this area include 'rapid application development' (RAD), 'agile software development' and 'accelerated development'. While representing different approaches, they share a focus on the rapid, frequent delivery of working software produced in a highly collaborative environment.

These approaches, which by default address a single system (and related services) only, can be supplemented by architectural approaches, such as those based on component-based reuse (see section 3.10 for further discussion of architecture).

The application lifecycle model described in the section on management of applications (section 5.3) can be viewed as an example of a linear or 'waterfall' (or 'V' model)-based approach, and will not be discussed in further detail here, other than for comparison purposes with other approaches.

The 'agile' approach can feature development where requirements and solutions can evolve as different teams work together. It uses continuous feedback, planning, testing, integration and continuous evolution.

The main feature of RAD is the introduction of increments and iterations in the development process for the management of the risks associated with uncertainty and changing requirements. Traditional approaches have assumed that a complete set of requirements could be defined early in the lifecycle and that development costs could be controlled by managing change. However, discouraging change can mean being unresponsive to business conditions. RAD approaches accept that change is inevitable and attempt to minimize the costs of responding to them while still retaining the required quality.

The use of increments implies that a service is developed piece by piece, where every piece could support one of the business functions that the entire service needs. Incremental delivery could result in shorter time to market for specific business functions. The development of every increment requires traversal of all lifecycle stages.

Iterative development implies that the lifecycle will be traversed more than once, by design. Techniques such as prototyping are used to get a better understanding of the requirements (by testing functional, management and operational activities and through communication with users).

**Key message**

In RAD, combinations of iterative and incremental approaches are possible. It is possible to start with the specification of requirements for the entire service, followed by the design and development of the application incrementally.

RAD development methods, including the unified process and dynamic systems development method

(DSDM), are seen as a response to business expectations, with the goal of reducing the cost of change throughout a development project. DSDM utilizes continuous user involvement in an iterative development and incremental approach, which is responsive to changing requirements, to develop a software system that satisfies the business requirements on time and on budget.

Another example, Extreme Programming (XP), calls for developers to:

- Produce a first service delivery in weeks, to achieve an early win and rapid feedback
- Invent simple solutions, so there is less to modify and also facilitating change
- Improve design quality continually
- Test early for less expensive fault-finding
- Use basic disciplines such as reviews, configuration and change management to keep control.

To make good use of an incremental approach, the design process needs to be based on a separation of concerns (SoC), by grouping functions within increments in such a way that their interdependence is minimized (see section 5.3.8 for more information on SoC).

In general terms, accelerated application development methods adopt a three-stage lifecycle model: accelerated analysis and design, time-boxed development, and production and implementation. The methods are usually underpinned by software engineering technology, and rely on joint (IT–user) working and prototyping to quickly define requirements and create a working prototype.

From a business perspective, the use of incremental development and delivery by developers means that a valid, distinct part of the overall service can be delivered before the development team is in a position to complete the whole project. This approach offers early benefits to the business, and provides an opportunity for both the business and development team to discover emergent service properties and learn from their experience. However, it is often difficult to find a sufficiently small first increment that can provide a meaningful service to business.

RAD methods embodying iteration and incremental delivery can be used to reduce both development and implementation risks. The actual projects may not necessarily be easier to manage, but they can facilitate implementation and acceptance. They offer more options for contingency and enable developers to deal with changing business requirements and environmental conditions. They also provide both milestones and decision points for project control purposes. These methods can additionally be used to:

- Reach or converge on a design acceptable to the customer and feasible to the development team
- Limit the project's exposure to the unpredictable elements of both business and environmental change
- Save development time, although for a successful RAD project, something other than schedule must be negotiable. (RAD has the best chance for success if the business is willing to negotiate on both functionality and quality.)

Important RAD constraints or CSFs include:

- 'Fitness for business purpose' as the criterion for acceptance of deliverables
- Representation of all parties that can impact application requirements throughout the development process
- Customers, developers and management accepting informal deliverables – for example, notes from user workshops rather than formal requirements documents
- Creation of the minimum documentation necessary to facilitate future development and maintenance
- Empowerment of development teams to make decisions traditionally left to management
- Iteration being used in such a manner as to converge towards an acceptable business solution
- Prototypes that can incorporate evolving requirements quickly, to gain consensus early in the lifecycle.

The use of RAD approaches requires skilled, multidisciplinary teams who are able to advise on when to apply such approaches. Table 3.6 compares and contrasts aspects of the conventional or 'waterfall' approach with RAD approaches.

#### *3.11.3.2 Off-the-shelf solutions*

Many organizations now choose to fulfil their IT service requirements through purchasing and implementing commercial off-the-shelf (COTS) software package solutions. A framework for

**Table 3.6 Comparison between conventional ('waterfall') and RAD approaches**

| Category | Conventional development | Accelerated development |
|---|---|---|
| General approach | Sequential phases | Evolutionary |
| User resource commitment | ±15% throughout the project | 100% throughout project for project sponsor, ±30% for selected others |
| Risk | Higher – longer-term project problems may not emerge until well into the development project | Lower – problems surface early in the development process, requiring quick resolution |
| Executive sponsorship | Has approval authority, but not actively involved | High participation – sets scope, reviews progress and resolves issues |
| Use of joint session, iteration and prototyping techniques | Optional | Required |
| Developer skills | Specialists, some with limited experience acceptable | Highly experienced, multi-skilled professionals required |
| Use of process support technology, e.g. CASE tools | Optional | Required |
| Team structure | Usually large with specialized skill sets | Usually small with general skill sets, supplemented by specialists as needed |
| Rigorous scope management | Necessary | Critical |
| Phase structure | Four to five phases | Three phases |
| Individual accountability | Difficult to assess | Precise accountability |

CASE = computer-aided software engineering.

selecting, customizing and implementing these off-the-shelf packaged solutions is required and includes the need to:

- Fully understand the advantages and disadvantages of the package approach
- Define a framework for effective software package selection
- Define a framework for effective customization and integration
- Define functional requirements at the appropriate level
- Develop a checklist of management and operational requirements
- Define product and supplier requirements
- Define service integration requirements
- Identify and investigate potential off-the-shelf software package solutions
- Present recommendations about the fit of a selected off-the-shelf software package against agreed requirements, and define the implications of this.

Detailed standards will be needed on:

- Packages and prototyping
- Defining the structure of weighted evaluation matrices
- Iteration in package selection.

Additionally, procedures for evaluating and comparing competing packages in terms of customization/integration requirements are needed and should include:

- Evaluating the functional match
- Scripted demonstrations and user-driven evaluation
- Evaluating the management and operational match
- Evaluating the implementation requirements match.

Standards for documenting requirements prior to package market investigation should include those that specifically show:

**Table 3.7 Service design inputs and outputs by lifecycle stage**

| Lifecycle stage | Service design inputs (from the lifecycle stage in the first column) | Service design outputs (to the lifecycle stage in the first column) |
|---|---|---|
| **Service strategy** | Vision and mission<br>Service portfolio<br>Policies<br>Strategies and strategic plans<br>Priorities<br>Service charters including service packages and details of utility and warranty<br>Financial information and budgets<br>Documented patterns of business activity and user profiles<br>Service models | Input to business cases and the service portfolio<br>Service design packages<br>Updated service models<br>Service portfolio updates including the service catalogue<br>Financial estimates and reports<br>Design-related knowledge and information in the SKMS<br>Designs for service strategy processes and procedures |
| **Service transition** | Service catalogue updates<br>Feedback on all aspects of service design and service design packages<br>Input and feedback to transition plans<br>Response to requests for change (RFCs)<br>Knowledge and information in the SKMS (including the CMS)<br>Design errors identified in transition for re-design<br>Evaluation reports | Service catalogue<br>Service design packages, including:<br>■ Details of utility and warranty<br>■ Acceptance criteria<br>■ Service models<br>■ Designs and interface specifications<br>■ Transition plans<br>■ Operation plans and procedures<br>RFCs to transition or deploy new or changed services<br>Input to change evaluation and CAB meetings<br>Designs for service transition processes and procedures<br>SLAs, OLAs and underpinning contracts |
| **Service operation** | Operational requirements<br>Actual performance information<br>RFCs to resolve operational issues<br>Historical incident and problem records | Service catalogue<br>Service design package, including:<br>■ Details of utility and warranty<br>■ Operations plans and procedures<br>■ Recovery procedures<br>Knowledge and information in the SKMS<br>Vital business functions<br>HW/SW maintenance requirements<br>Designs for service operation processes and procedures<br>SLAs, OLAs and underpinning contracts<br>Security policies |

*Table continues*

*Table 3.7 continued*

| Lifecycle stage | Service design inputs (from the lifecycle stage in the first column) | Service design outputs (to the lifecycle stage in the first column) |
|---|---|---|
| Continual service improvement | Results of customer and user satisfaction surveys | Service catalogue |
| | Input to design requirements | Service design packages including details of utility and warranty |
| | Data required for metrics, KPIs and CSFs | Knowledge and information in the SKMS |
| | Service reports | Achievements against metrics, KPIs and CSFs |
| | Feedback on service design packages | Design of services; measurements; processes; infrastructure; systems |
| | RFCs for implementing improvements | Design for the seven-step improvement process and procedures |
| | | Improvement opportunities logged in the CSI register |

- High-level functions (for scoping purposes)
- Business functions and significant events
- Significant input and output requirements
- Data (static) structures
- Identifying relationships between those structures, functions and events
- Service-wide management and operational requirements
- Non-functional requirements such as performance, throughput, disaster recovery capabilities, infrastructure and security standards.

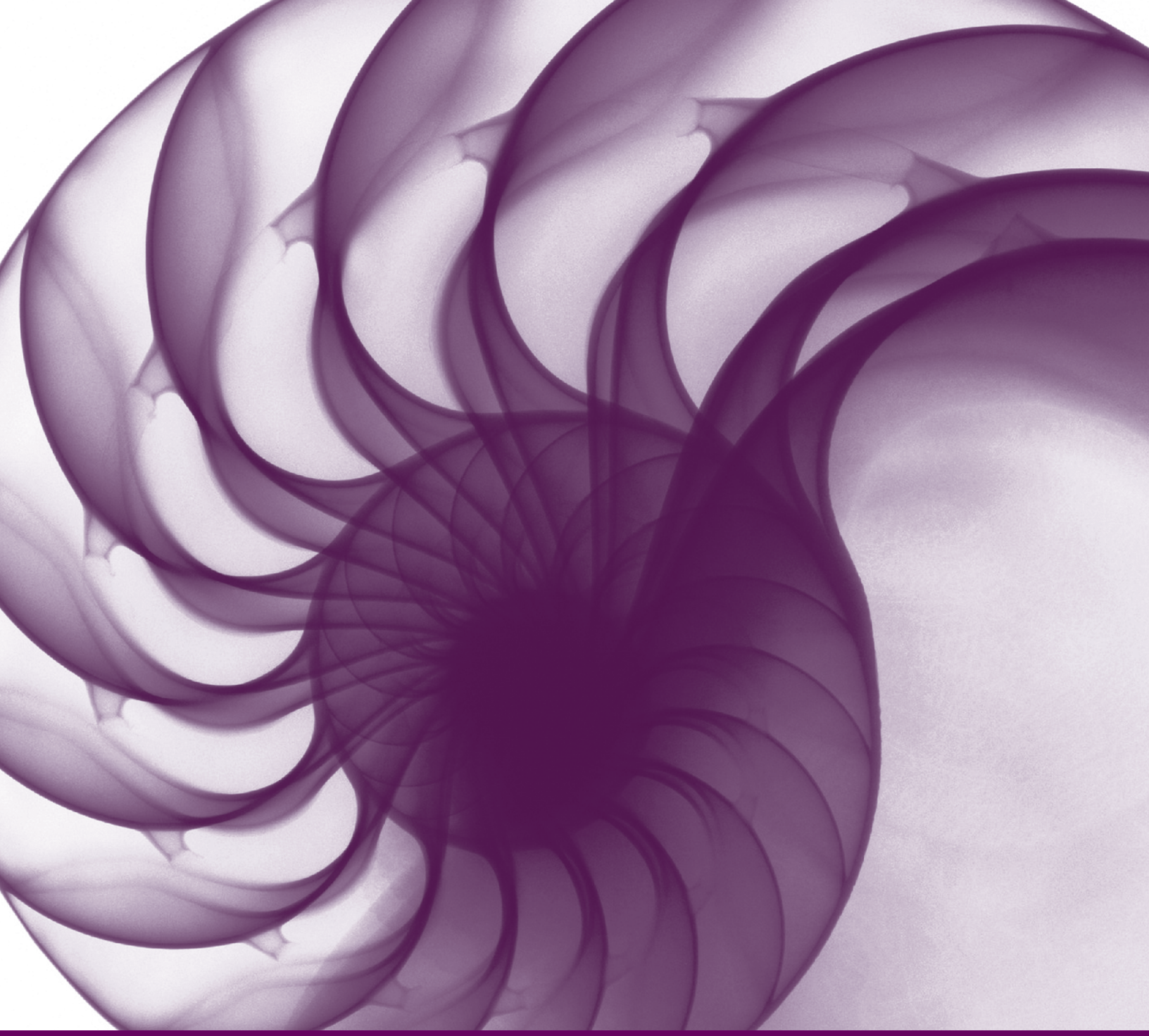
When evaluating COTS solutions, consider the following three ways in which a requirement can be fulfilled:

- Available off the shelf
- Can be configured. Estimate the effort to perform the configuration. This only needs to be done once and will be preserved over upgrades of the product
- Must be customized. Estimate the effort to perform the customization initially and to repeat it on each upgrade of the product, bearing in mind that the customization concept might not be applicable to future releases.

Also investigate the strategy and release plan of the package supplier and ascertain whether it is aligned to yours, and to what extent you can expect your future requirements to be met by the package.

## 3.12 SERVICE DESIGN INPUTS AND OUTPUTS

The main inputs to service design are requirements for new or changed services. The main output of service design is the service design package, which includes all of the information needed to manage the entire lifecycle of a new or changed service. Table 3.7 shows the major service design inputs and outputs, by lifecycle stage. Appendix O provides a summary of the major inputs and outputs between each stage of the service lifecycle.



# 4 Service design processes

# 4 Service design processes

This chapter describes and explains the fundamentals of the key processes supporting service design. These processes are principally responsible for providing key information for the design of new or changed service solutions. The processes described in this chapter are:

- Design coordination
- Service catalogue management
- Service level management
- Availability management
- Capacity management
- IT service continuity management (ITSCM)
- Information security management
- Supplier management.

There are no situations within IT service provision with either internal or external service providers where there are no processes in the service design area. All IT service provider organizations already have some elements of their approach to the five aspects of service design in place, no matter how basic. Before starting on the implementation or the improvement of activities and processes, a review should be conducted of what elements are in place and working successfully. Many service provider organizations already have mature processes in place for designing IT services and solutions.

In order to develop effective and efficient service solutions that meet the current and evolving requirements of the business as well as the needs of IT, it is essential that the inputs and needs of all other areas and processes are considered and reviewed within each of the service design activities, as illustrated in Figure 4.1. This will ensure that all service solutions are consistent and compatible with existing solutions and will

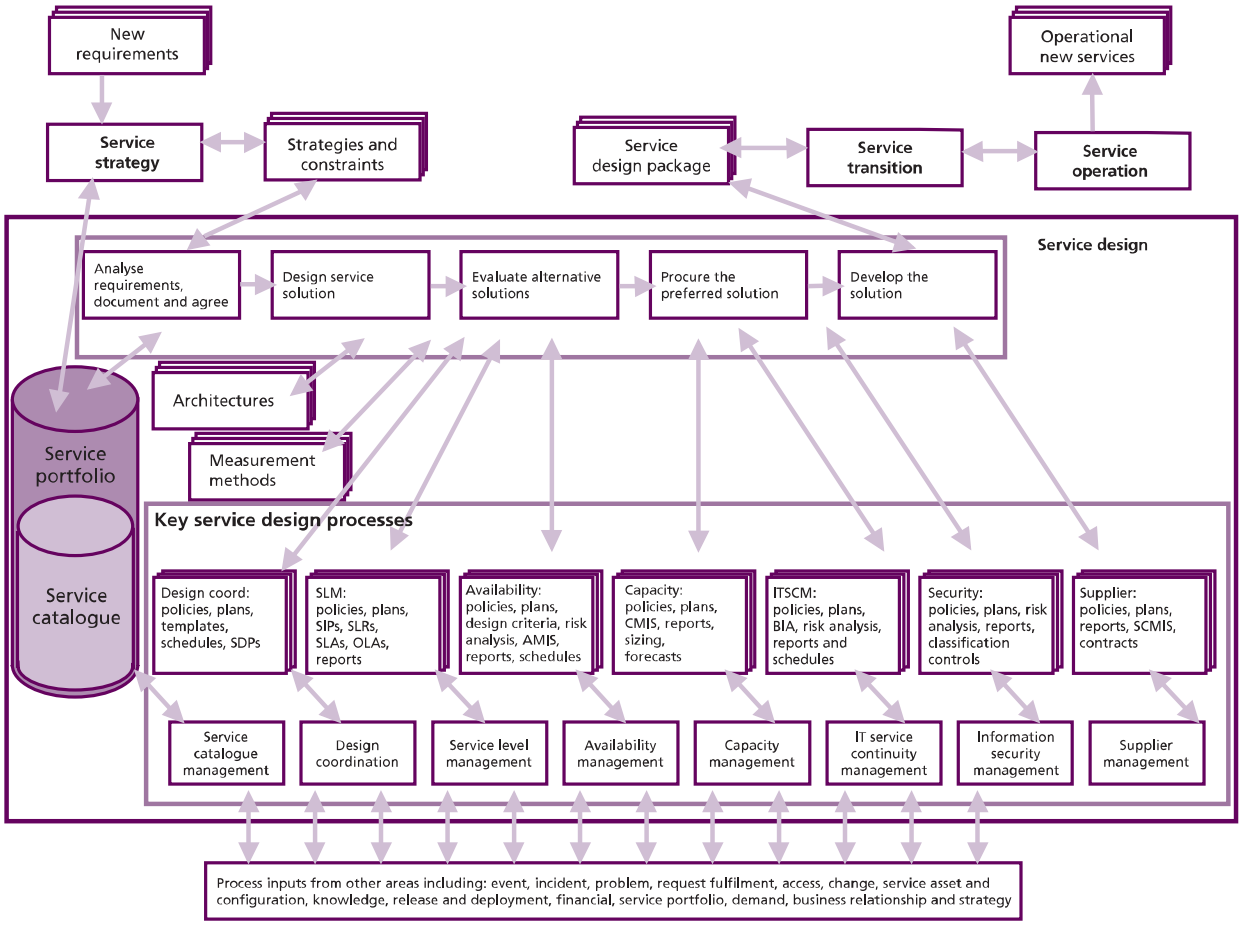



*Figure 4.1 Service design – the big picture*

meet the expectations of the customers and users. Critical facets of the key processes should be consolidated into all of the service design activities, so that all inputs are automatically referenced every time a new or changed service solution is produced.

## 4.1 DESIGN COORDINATION

The activities of the service design stage are detailed and complex. Only through well-coordinated action can a service provider hope to create comprehensive and appropriate designs that will support the achievement of the required business outcomes.

### 4.1.1 Purpose and objectives

The purpose of the design coordination process is to ensure the goals and objectives of the service design stage are met by providing and maintaining a single point of coordination and control for all activities and processes within this stage of the service lifecycle.

The objectives of the design coordination process are to:

- Ensure the consistent design of appropriate services, service management information systems, architectures, technology, processes, information and metrics to meet current and evolving business outcomes and requirements
- Coordinate all design activities across projects, changes, suppliers and support teams, and manage schedules, resources and conflicts where required
- Plan and coordinate the resources and capabilities required to design new or changed services
- Produce service design packages (SDPs) based on service charters and change requests
- Ensure that appropriate service designs and/or SDPs are produced and that they are handed over to service transition as agreed
- Manage the quality criteria, requirements and handover points between the service design stage and service strategy and service transition
- Ensure that all service models and service solution designs conform to strategic, architectural, governance and other corporate requirements
- Improve the effectiveness and efficiency of service design activities and processes
- Ensure that all parties adopt a common framework of standard, reusable design practices in the form of activities, processes and supporting systems, whenever appropriate
- Monitor and improve the performance of the service design lifecycle stage.

### 4.1.2 Scope

The scope of the design coordination process includes all design activity, particularly all new or changed service solutions that are being designed for transition into (or out of, in the case of a service retirement) the live environment.

Some design efforts will be part of a project, whereas others will be managed through the change process alone without a formally defined project. Some design efforts will be extensive and complex while others will be simple and swift. Not every design activity requires the same level of rigor to ensure success, so a significant number of design efforts will require little or no individual attention from the design coordination process. Most design coordination process activity focuses around those design efforts that are part of a project, as well as those that are associated with changes of defined types. Typically, the changes that require the most attention from design coordination are major changes, but any change that an organization believes could benefit from design coordination may be included.

Each organization should define the criteria that will be used to determine the level of rigour or attention to be applied in design coordination for each design. Some organizations take the perspective that all changes, regardless of how small in scope, have a 'design' stage, as it is important that all changes have clear and correct plans for how to implement them. In this perspective, the lifecycle stage of service design still occurs, even if the designs for simple or standard changes are usually pre-built and are reused frequently and quickly. Sometimes the stage is quite complex and long and sometimes it is simply a rapid check that the right 'design' (procedure) is being used. Other organizations take the perspective that only changes that fit certain criteria, such as those associated with a project or major change, have a formal service design stage. In this perspective, changes that fail to meet the

agreed criteria may be considered out of the scope of this process.

Whichever perspective is adopted by an organization, the end result should be more successful changes that deliver the required business outcomes with minimal disruption or other negative impacts on business operations. If an organization's approach produces that result, then the organization is performing design coordination correctly.

The design coordination process includes:

- Assisting and supporting each project or other change through all the service design activities and processes
- Maintaining policies, guidelines, standards, budgets, models, resources and capabilities for service design activities and processes
- Coordinating, prioritizing and scheduling of all service design resources to satisfy conflicting demands from all projects and changes
- Planning and forecasting the resources needed for the future demand for service design activities
- Reviewing, measuring and improving the performance of all service design activities and processes
- Ensuring that all requirements are appropriately addressed in service designs, particularly utility and warranty requirements
- Ensuring the production of service designs and/or SDPs and their handover to service transition.

The design coordination process does not include:

- Responsibility for any activities or processes outside of the design stage of the service lifecycle
- Responsibility for designing the detailed service solutions themselves or the production of the individual parts of the SDPs. These are the responsibility of the individual projects or service management processes.

### 4.1.3 Value to the business

The main value of the design coordination process to the business is the production of a set of consistent quality solution designs and SDPs that will provide the desired business outcomes.

Through the work of design coordination organizations can:

- Achieve the intended business value of services through design at acceptable risk and cost levels
- Minimize rework and unplanned labour costs associated with reworking design issues during later service lifecycle stages
- Support the achievement of higher customer and user satisfaction and improved confidence in IT and in the services received
- Ensure that all services conform to a consistent architecture, allowing integration and data exchange between services and systems
- Provide improved focus on service value as well as business and customer outcomes
- Develop improved efficiency and effectiveness of all service design activities and processes, thereby supporting higher volumes of successful change delivered in a timely and cost-effective manner
- Achieve greater agility and better quality in the design of service solutions, within projects and major changes.

### 4.1.4 Policies, principles and basic concepts

A structured and holistic approach to design activities should be adopted, so that all available information is considered and to ensure that consistency and integration are achieved throughout the IT organization, within all design activities. The design coordination process provides guidelines and policies to allow for this holistic approach and the coordination to ensure the practices are followed.

#### *4.1.4.1 Policies*

The service provider should define policies for which service design efforts require which type of attention from design coordination. For example, the policy might specify that the design portion of all projects, as well as for all changes that meet specific criteria (such as major changes) should receive individual coordination, while other changes must simply adhere to predefined design standards for that change type. These design standards are likely to be embedded in the change model and/or associated documented procedures for executing changes of that type.

The level of required documentation should also be established by policy. For design efforts that are part of a project or are associated with

changes that meet specific criteria (such as major changes), a full service SDP will be required. For other changes, if in scope, the 'service design' may be documented very simply, and may even be pre-built if the change has been done before.

The design coordination policies should include:

- Adherence to corporate standards and conventions
- Explicit attention to governance and regulatory compliance in all design activities
- Standards for elements of a comprehensive design for new or changed services such as:
  - Document templates
  - Documentation plans
  - Training plans
  - Communications and marketing plans
  - Measurement and metrics plans
  - Testing plans
  - Deployment plans
- Criteria for resolving conflicting demands for service design resources
- Standard cost models.

Design coordination policies are likely to provide for appropriate variations within acceptable parameters for designs of different types and scopes. For example, since the user community will likely start with a sound basis of practical knowledge, the acceptable content of a training plan for a change to a well-established existing service might differ from the requirements for a training plan for an entirely new service. Regardless, the policies and standards established should result in the most appropriate SDPs while expending the least possible time and effort to produce them.

**Table 4.1 CSI approach for design coordination implementation**

| CSI approach step | Guidance |
|---|---|
| What is the vision? | Consider how, in a perfect world, service design should work at your organization. Come to consensus among the key stakeholders regarding what you would like to create and what the critical success factors for service design should be. |
| Where are we now? | As objectively as possible, assess the current state of service design activities. How are they performed now? By whom are they performed and under what circumstances? What are the challenges and weaknesses in the current approach? What is working well? Where do the greatest pain points exist in the current approach? What capabilities do we have or will we need to have? What risks exist? To the extent possible, collect baseline measurements of the performance of current practices. |
| Where do we want to be? | Based on the overall vision for service design and the current state of these activities, agree on priorities for improvement. Improvement opportunities will exist in many processes that are active during service design, but the implementation of the design coordination process should provide for reliable, repeatable and consistent overall practices for service design. Based on the agreed priorities, select the specific design coordination practices to implement, defining them clearly with SMART objectives. (See the glossary and *ITIL Continual Service Improvement* for more information about SMART objectives.) |
| How do we get there? | Devise a detailed plan for how to move from the current state to the achievement of the agreed improvements and then execute the plan. |
| Did we get there? | Use the metrics associated with the SMART objectives to determine whether the improvement(s) to service design practices have been successfully implemented. If a gap still remains between the new current state and the desired state, additional work may be necessary. |
| How do we keep the momentum going? | Use ongoing monitoring of the performance of service design practices to ensure that new or revised practices become institutionalized. Encourage feedback and suggestions for improvement from all other stages in the lifecycle. |

#### 4.1.4.2 Principles – balance and prioritization

Perhaps the single most important guideline to be followed in design coordination is balance. A comprehensive design that addresses all aspects of utility and warranty, as well as the needs of the service throughout its lifecycle, is certainly the goal. Care must be taken, however, not to set up standards or documentation requirements that create excessive bureaucracy without consistently returning better services to the business and/or customer. The goal should be to put just enough definition, measurement and control of design activities in place to successfully manage the work and improve results, but no more.

When implementing a formal design coordination process, a service provider should build on their current practices and leverage the steps of the continual service improvement (CSI) approach as a guide. See Chapter 3 of *ITIL Continual Service Improvement* for details of this approach.

Table 4.1 shows how the CSI approach may be applied to the implementation of design coordination. Key to success will be prioritization. Do not attempt to implement more new practices than the organization can absorb at any one time. To do so may result in undesirable disruption to design activities already under way or in a failure of the organization to successfully adopt the new or revised practices.

#### 4.1.4.3 Principles – integration with project management

In most organizations many design efforts are managed as part of a project utilizing formal project management methods. Many organizations have historically relied heavily on the experience of the project manager to ensure successful design, but not all project managers have the requisite detailed knowledge of what makes for good design. Furthermore, under the pressure of project deadlines and other constraints, many project managers struggle to consistently manage customer expectations and prevent excessive or unmanaged change to the scope of the project.

As part of design coordination, it is important that practices, documents, procedures or deliverables deemed to be needed for design success should be integrated into the overall project management methodology and all project managers trained to contribute appropriately. Agreement to these improvements should be reached away from the pressures of any individual project. Once agreed and in place, project managers will all work in the same way to enforce the methods and each individual project will benefit from the improvements.

### 4.1.5 Process activities, methods and techniques

The following work occurs during the service design stage and should be coordinated by the design coordination process:

- Requirements collection, analysis and engineering to ensure that business requirements are clearly documented and agreed
- Requirements collection, analysis and engineering to ensure that service provider and technical requirements are clearly documented and agreed, and that they support the business requirements correctly
- Design of appropriate service solutions, technology, processes, information and metrics to meet business requirements
- Review and revision of the design of all processes and the maintenance of processes and process documents involved in service design, including designs, plans, architectures and policies
- Production and maintenance of IT policies and design documents, including designs, plans, architectures and policies
- Review and revision of all design documents for completeness and adherence to standards
- Planning for the deployment and implementation of IT strategies using 'roadmaps', programmes and project plans
- Risk assessment and management of all design processes and deliverables
- Ensuring alignment with all corporate and IT strategies and policies
- Production of service designs and/or SDPs for new or changed services.

Design coordination activities themselves fall into two categories:

- **Activities relating to the overall service design lifecycle stage** These activities include the development, deployment and continual improvement of appropriate service design

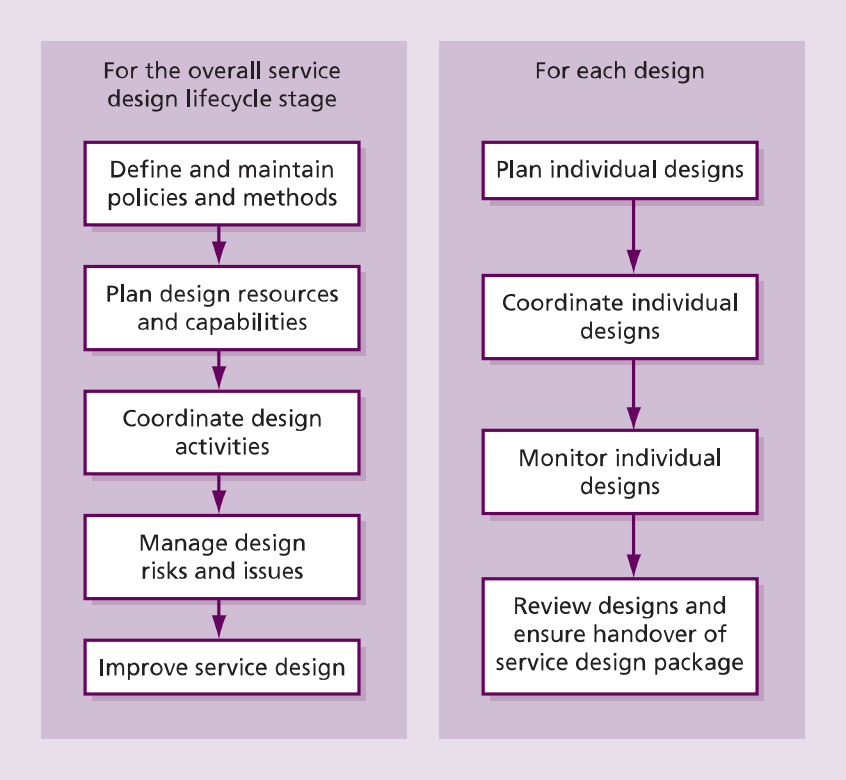



*Figure 4.2 Design coordination activities*

practices, as well as the coordination of actual design activity across projects and changes. These activities may be performed by design coordination process manager(s).

- **Activities relating to each individual design** These activities focus on ensuring that each individual design effort and SDP, whether part of a project or simply associated with a change, conforms with defined practices, and that they produce a design that will support the required business outcomes. These activities may be performed by a project manager or other individual with direct responsibility for the project or change, with the assistance and guidance of the design coordination process manager(s).

The activities within the design coordination process are shown in Figure 4.2.

Overall lifecycle stage activities should include:

- Define and maintain policies and methods
- Plan design resources and capabilities
- Coordinate design activities
- Manage design risks and issues
- Improve service design.

Individual design activities should include:

- Plan individual designs
- Coordinate individual designs
- Monitor individual designs
- Review designs and ensure handover of SDPs.

### *4.1.5.1 Define and maintain policies and methods (overall activity)*

This activity is used to define the overall holistic approach to service design. This is to ensure that consistent and accurate designs are produced to ultimately provide services in the operational environment which deliver and continue to deliver their required business outcomes.

Design coordination should work collaboratively with all processes engaged in any part of the service design stage to ensure that a common framework of standard reusable processes, procedures and systems are used to improve the effectiveness and efficiency of overall service design. This includes agreeing, using and managing the quality criteria, requirements, interfaces and hand-off points between the service design stage

and other stages, particularly service strategy and service transition.

Of particular importance will be defining the level of design coordination needed for different types of project and change. Design coordination, project management and change management should collaborate to define policies and consistent practices for the design work associated with projects and changes. This may involve predefining design requirements for different project types or change models and predefining actual designs for standard changes. For the latter, this would mean that the service design stage for standard changes would effectively be completed in advance, streamlining the processing of such changes, while still ensuring proper control.

Design coordination should maintain a set of architectural documents and principles for the design of service solutions and the production of SDPs. As circumstances change, design coordination may need to handle the revision of any architectural documents necessitated by changes in IT strategy or new or changed service solutions. All policies and methods should be regularly reviewed for relevance and performance as part of the 'improve service design' activity.

#### *4.1.5.2 Plan design resources and capabilities (overall activity)*

Design coordination is responsible for planning and coordination of the resources and capabilities required for new or changed services and producing the appropriate SDPs. Completely new services or changes to services, service packages and associated service options that come through service strategy may require significant resources for service design. But even changes that do not require explicit attention during service strategy may impact resource planning for overall service design as the same resources required for changes that do come through service strategy may also be required for those that do not. Managing competing demand for shared resources is an important part of this activity.

To successfully plan and coordinate both resources and capabilities, design coordination needs to be well informed regarding activity in the service portfolio (particularly the service pipeline) as well as the change management process. Maintaining regular communication with business relationship managers and service owners will help to ensure that this process is informed of changes (including those requiring a project) that will require design resources.

It is not enough, however, for this process to consider design resources. The required capabilities must also be identified and maintained. As design coordination works to define consistent, reliable and repeatable methods for service design, required capabilities will be identified. As part of this planning activity, design coordination should identify gaps in current capabilities and work with management and the leaders of the various functional units to plan to fill those gaps. This may be done through such actions as:

- Providing training to existing personnel
- Hiring new staff
- Identifying and implementing technologies to automate design activities, enforce requirements and enforce standards
- Creating new processes and/or procedures to enhance organizational capabilities
- Identifying and implementing improvements to existing processes and/or procedures
- Developing new knowledge and making it readily accessible (via the knowledge management process).

#### *4.1.5.3 Coordinate design activities (overall activity)*

Coordinating design activity on a project-by-project basis is not enough. Ensuring that all designs are moving forward in the most effective and efficient manner requires oversight of all design activity, regardless of whether it is being conducted as part of a formal project or being managed through change management without a project. This activity is concerned with coordination of all design activities across projects and changes, managing schedules, resources and conflicts, and suppliers and support teams where required.

Design coordination must be closely integrated with the other service design processes as well as the change management process, where appropriate, to ensure that schedules are clear and design milestones are communicated and met. It must also ensure that all designs cover both functional (utility) and operational (warranty) requirements, including management systems,

architectures, measurement and metrics systems, and processes.

The most effective IT service providers integrate all five aspects of design (see section 3.7 for a detailed discussion of these aspects), rather than design them in isolation. This ensures that an integrated enterprise architecture is produced, consisting of a set of standards, designs and architectures that satisfy all of the management and operational requirements of services, as well as the functionality required by the business. This integrated design ensures that when a new or changed service is implemented, it not only provides the functionality required by the business, but also meets and continues to meet all its service levels and targets in all areas. This ensures that no weaknesses (or an absolute minimum) will need to be addressed retrospectively. Consequently, design coordination should provide advice and guidance on design principles and criteria and the service acceptance criteria for differing levels of utility and warranty.

In order to achieve integrated design, the overall coordination of design activities needs to ensure:

- Good communication between the various design activities and all concerned parties, including the business and IT planners, designers, architects and strategists
- The latest versions of all appropriate business and IT plans and strategies are available to all designers
- All architectural documents, service models, service solution designs and SDPs conform to strategic, architectural, governance and other corporate requirements, as well as IT policies and plans
- Good communication and coordination with service transition processes to ensure proper handover to this stage
- The architectures and designs:
  - Are flexible and enable IT to respond quickly to new business needs
  - Integrate with all strategies and policies
  - Support the needs of other stages of the service lifecycle
  - Facilitate new or changed services and solutions, appropriately aligned with the needs and timescales of the business.

#### *4.1.5.4 Manage design risks and issues (overall activity)*

Design coordination should use formal risk assessment and management techniques to manage risks associated with design activities and reduce the number of issues that can subsequently be traced to poor design. Attention should be paid to both risks that are common to all design efforts as well as those associated with individual projects and changes.

Policies and procedures should be established for documenting and responding to issues during the design stage and these procedures should be integrated into design processes and the organization's project management methodology, wherever appropriate.

#### *4.1.5.5 Improve service design (overall activity)*

The design coordination process can ensure that the goals and objectives of the service design stage are consistently achieved by continually working to improve the effectiveness and efficiency of service design activities and processes. In order to accomplish this, design coordination must monitor and measure the performance of the service design stage of the lifecycle. This will allow the identification of improvement opportunities based on objective data and information instead of relying on anecdotal information or who complains the loudest.

The CSI approach described earlier for use in implementing design coordination should be used for continual process improvement as well. All improvement ideas are logged in the CSI register for consideration. Those improvements selected for action will typically be added to appropriate service improvement plans (SIPs).

#### *4.1.5.6 Plan individual designs (individual activity)*

The design activity for each individual project or change needs to be carefully planned. As the maturity of design practices grows, this planning should be easier and easier to execute as it will draw upon standards and templates already built and tested. Simple changes will have planning already completed, while projects and more complex changes will leverage previous work and

modify existing materials to meet their specific needs.

Design activities should focus on ensuring that the resulting design can deliver the required business outcomes. It is important for the service provider to remember that the desired business outcomes include not only the utility of the service, but also such things as cost and schedule. This means that the design activities must consider functionality (utility), warranty, requirements to establish the service in effective use in the organization, and requirements to operate, maintain and support the service on an ongoing basis – in other words, the full SDP. Furthermore, if the service charter calls for more than one service option, designs must be able to support all required options. To establish the service in effective use, it must not only be working as designed, but users must also know that it exists and how to use it and the service provider must know how to care for the service. Service designs should include designs for monitoring, maintenance and support. For the service provider to operate and support the service, proper measurements need to be in place to routinely monitor, manage and improve the service.

#### *4.1.5.7 Coordinate individual designs (individual activity)*

This work, like that of individual design planning, will most frequently be performed by a project manager or other individual with direct responsibility for the particular project or change. As they execute this activity of the design coordination process, they will draw upon the body of experience developed by the process from other designs. It is during this activity that close attention must be paid to scheduling of both the service provider and customer resources to ensure involvement of the right people at the right time to create an accurate and complete design.

The work of the design stage is likely to be highly iterative as requirements are gathered, documented, agreed, translated into designs, validated with the customer and adjustments made. It is even possible that as the service design stage progresses, information will come to light that requires re-visiting the strategic decisions previously made about the service. In this case, the service portfolio management process and other processes may be re-engaged as appropriate.

As methods mature, the service provider should improve its capabilities around drawing out requirements from the customer that truly reflect their required business outcomes, allowing fewer iterations and therefore more efficient design. Some iteration, however, will almost always be needed in projects or changes of all but the smallest scope. Where service providers adopt the use of rapid or 'agile' design and development methods, they should improve their capabilities in executing each iteration so that the overall service design is achieved effectively and efficiently.

Throughout design activities it is important that all requirements of service, business and project change management be carefully adhered to, as well as ensuring that requirements for documentation of changes to service assets via the service asset and configuration management process also be met.

#### *4.1.5.8 Monitor individual designs (individual activity)*

The design coordination process should monitor each ongoing design effort to ensure that there is adherence to agreed methods; that there are no conflicts with other ongoing design efforts; that design milestones are being met; and that the development of a comprehensive design that will support the achievement of the required business outcomes is taking place. It is better to identify early on that a design effort is struggling and to correct the situation than to continue and suffer from the weaknesses that will almost certainly result later in the project or change.

#### *4.1.5.9 Review designs and ensure handover of SDP (individual activity)*

The last step in any individual design effort is to perform a final review of the designs for compliance with standards and conventions, and to ensure that all agreed requirements for the SDP have been completed correctly. Any issues should be documented and it should be determined whether they require revisiting any part of service design, or whether they can be addressed as part of the plan for service transition.

Once all required criteria for an SDP have been met, the SDP can be officially handed over for service transition, typically via the activity of the transition planning and support process. This may

involve the use of formal checklists and there may be a corresponding authorization from change management required at this stage. The people involved in the service transition work are likely to be many of the same people who were involved in service design, so this step is likely to be performed by a change of status on the record for the service in the service portfolio and the documentation of this milestone having been completed.

## 4.1.6 Triggers, inputs, outputs and interfaces

### *4.1.6.1 Triggers*

The triggers for the design coordination process are changes in the business requirements and services, and therefore the main triggers are requests for change (RFCs) and the creation of new programmes and projects. Another major trigger for the review of design coordination activities would be the revision of the overall IT strategy.

### *4.1.6.2 Inputs*

A number of sources of information are relevant to the design coordination process. These include:

- Service charters for new or significantly changed services
- Change requests from any stages of the service lifecycle
- Change records and authorized changes
- Business information from the organization's business and IT strategy, plans and financial plans, and information on their current and future requirements
- Business impact analysis, providing information on the impact, priority and risk associated with each service or changes to service requirements
- The service portfolio, including the service catalogue and the business requirements for new or changed services in terms of service packages and service options
- The IT strategy and any associated constraints and resource limitations
- Governance requirements
- Corporate, legal and regulatory policies and requirements
- The programme and project schedule
- The schedule of change
- The configuration management system (CMS)
- Feedback from all other processes
- The enterprise architecture
- Management systems
- Measurement and metrics methods
- Processes.

### *4.1.6.3 Outputs*

The process outputs of design coordination are potentially:

- A comprehensive and consistent set of service designs and SDPs
- A revised enterprise architecture
- Revised management systems
- Revised measurement and metrics methods
- Revised processes
- Service portfolio updates
- Updates to change records.

### *4.1.6.4 Interfaces*

The principal interfaces to the adjacent stages of the lifecycle are:

- Service strategy: using information contained within the IT strategy and service portfolio
- Service transition: with the handover of the design of service solutions within the SDP.

The design coordination process also interfaces with all the processes that include service design activity, especially the processes described in this publication. Key process interfaces include:

- **Service portfolio management** This process provides design coordination with the service charter and all associated documentation such as business requirements, requirements for service utility and warranty (including service options), risks and priorities.
- **Change management** This process produces change requests (formal communications requesting the addition, modification or removal of something in our live environment that we have chosen to control with change management). Design coordination and change management should have collaboratively defined policies and consistent practices for the design work associated with changes. Some changes will be of a scope that they will go through the service strategy stage and service portfolio management process, while others may come to design coordination directly from change management. Design coordination provides status information on design

milestones that relate to changes. Change management provides details of authorized changes from which detailed service design activity can proceed. Change management also provides authorization at defined points in the service lifecycle, to ensure that required actions have taken place and that quality criteria have been met. Finally, the post-implementation reviews (PIRs) from change management can provide valuable feedback on areas for improvement for design coordination.

- **Financial management for IT services** This process provides details of the value proposition for the new or changed service as well as budgets available.
- **Business relationship management** This process provides design coordination with intelligence and information regarding the business's required outcomes, customer needs and priorities and serves as the interface with the customer at a strategic level.
- **Transition planning and support** Design coordination provides the SDP to the service transition stage via this process. Transition planning and support carries out the overall planning and coordination for the service transition stage of the service lifecycle, in the same way that design coordination does for the service design stage. These two processes need to be carefully interfaced to ensure consistent overall plans and resource schedules for current and future projects and changes.
- **Strategy management for IT services** This process provides information about the current and evolving service strategy to enable design coordination to ensure that design guidelines and documentation remain aligned with the strategy over time.
- **Release and deployment management** This process manages the planning and execution of individual authorized changes, releases and deployments. Planning and design for release and deployment is carried out during the service design stage of the service lifecycle. Design coordination should ensure that this is integrated with other service design activities and forms part of the overall SDP.
- **Service validation and testing** This process plans and executes tests to ensure that the service matches its design specification and will meet the needs of the business. Planning and designing tests is carried out during the service design stage of the service lifecycle and design coordination should ensure that this is integrated with other service design activities and forms part of the overall SDP.
- **Change evaluation** This process determines the performance of a service change. This includes evaluation of the service design to ensure it is able to meet the intended requirements. Design coordination should be properly interfaced with change evaluation to ensure that the required resources are available to assist in evaluation of changes.
- **Service level management** Adherence to the standards and practices developed by design coordination for successful service design is critical for this process. Service level management is responsible for defining and agreeing the service level requirements for new or changed services, which must be done in a consistent manner according to practices developed cooperatively with design coordination. Activities of these two processes should be carefully integrated with service level management activity, focusing primarily on the warranty levels that are required in the solution design and design coordination activities. This should ensure that all parts of the service solution design and SDP are appropriately addressed.
- **Availability, capacity, IT service continuity and information security management processes** Each of these processes is actively involved in service design and must perform these design activities consistently, according to practices developed cooperatively with design coordination.
- **Supplier management** In order to ensure that the contributions of suppliers to design activities are properly managed, this process must collaborate with design coordination to develop consistent and reliable practices in this area. Supplier management will then take the lead in building these practices into supplier contracts and agreements as appropriate and then managing the suppliers and their performance during service design, with the assistance of design coordination.

### 4.1.7 Information management

The key information generated by the design coordination process is included in the SDP, which contains everything necessary to take the service through all other stages of the service lifecycle. The SDP may consist of multiple documents which should be included in the overall service knowledge management system (SKMS), and be described by information in the CMS.

### 4.1.8 Critical success factors and key performance indicators

The following list includes some sample critical success factors (CSFs) for design coordination. Each organization should identify appropriate CSFs based on its objectives for the process. Each sample CSF is followed by a small number of typical key performance indicators (KPIs) that support the CSF. These KPIs should not be adopted without careful consideration. Each organization should develop KPIs that are appropriate for its level of maturity, its CSFs and its particular circumstances. Achievement against KPIs should be monitored and used to identify opportunities for improvement, which should be logged in the CSI register for evaluation and possible implementation. Thus:

- **CSF** Accurate and consistent SDPs
  - **KPI** Reduction in the number of subsequent revisions of the content of SDPs
  - **KPI** Percentage reduction in the re-work required for new or changed service solutions in subsequent lifecycle stages
- **CSF** Managing conflicting demands for shared resources
  - **KPI** Increased satisfaction with the service design activities, within project and change staff
  - **KPI** Reduced number of issues caused by conflict for service design resources
  - **KPI** Percentage increase in the number of successful new and changed services in terms of outcomes, quality, cost and timeliness
  - **KPI** Improved effectiveness and efficiency in the service design processes, activities and supporting systems
  - **KPI** Reduced number and percentage of emergency change requests submitted by projects
- **CSF** New and changed services meet customer expectations
  - **KPI** Customer satisfaction score for each new or changed service meets or exceeds a designated rating
  - **KPI** Percentage increase in the number of transitioned services that consistently achieve the agreed service level targets.

### 4.1.9 Challenges and risks

#### *4.1.9.1 Challenges*

The major challenge facing design coordination is that of maintaining high-quality designs and SDPs consistently across all areas of the business, services and infrastructure. This requires multi-talented and multi-skilled designers and architects. It also requires integration of standards and practices developed by design coordination into the organization's project management methodology, wherever appropriate.

A related challenge is ensuring that sufficient time and resources are devoted to design coordination activities and that the roles and responsibilities of the process are assigned to the appropriate individuals and/or groups to ensure completion. In most organizations many of the design coordination activities for an individual design may be assigned to a project manager. Overall lifecycle stage activities may be assigned to the process managers, but key contributions are likely to be made by the service design manager, if one exists. See Chapter 6 for more on roles.

Another significant challenge is developing common design practices that produce the desired high-quality designs without introducing unnecessary bureaucracy. It is important that the level of control around design activities be appropriate to the need. Too little control and designs will be inconsistent and fail to meet true required business outcomes. Too much control and creativity may be stifled and inefficiencies may be introduced. If the processes are too difficult to follow, resistance and non-compliance will result.

#### *4.1.9.2 Risks*

The main risks associated with the provision of the design coordination process are:

- Potential lack of skills and knowledge
- Reluctance of the business to be involved
- Poor direction and strategy

- Lack of information on business priorities and impacts
- Poorly defined requirements and desired outcomes
- Reluctance of project managers to communicate and get involved
- Poor communication
- Lack of involvement from all relevant stakeholders including customers, users, and support and other operations staff
- Insufficient interaction with and input from other lifecycle stages
- Trying to save time and money during the design stage which will result in poorer designs requiring more changes after the new or changed service goes live.

## 4.2 SERVICE CATALOGUE MANAGEMENT

The service catalogue is one of the most valuable elements of a comprehensive approach to service provision and, as such, it should be given proper care and attention. The service catalogue management process provides the means of devoting that care and attention in a consistent fashion, ensuring that the organization accrues all of the potential benefits of a service catalogue in the most efficient manner possible.

### 4.2.1 Purpose and objectives

The purpose of the service catalogue management process is to provide and maintain a single source of consistent information on all operational services and those being prepared to be run operationally, and to ensure that it is widely available to those who are authorized to access it.

The objectives of the service catalogue management process are to:

- Manage the information contained within the service catalogue
- Ensure that the service catalogue is accurate and reflects the current details, status, interfaces and dependencies of all services that are being run, or being prepared to run, in the live environment, according to the defined policies
- Ensure that the service catalogue is made available to those approved to access it in a manner that supports their effective and efficient use of service catalogue information
- Ensure that the service catalogue supports the evolving needs of all other service management processes for service catalogue information, including all interface and dependency information.

### 4.2.2 Scope

The scope of the service catalogue management process is to provide and maintain accurate information on all services that are being transitioned or have been transitioned to the live environment. The services presented in the service catalogue may be listed individually or, more typically, some or all of the services may be presented in the form of service packages (see *ITIL Service Strategy* for information about service packages).

The service catalogue management process covers:

- Contribution to the definition of services and service packages
- Development and maintenance of service and service package descriptions appropriate for the service catalogue
- Production and maintenance of an accurate service catalogue
- Interfaces, dependencies and consistency between the service catalogue and the overall service portfolio
- Interfaces and dependencies between all services and supporting services within the service catalogue and the CMS
- Interfaces and dependencies between all services, and supporting components and configuration items (CIs) within the service catalogue and the CMS.

The service catalogue management process does not include:

- Detailed attention to the capturing, maintenance and use of service asset and configuration data as performed through the service asset and configuration management process (see *ITIL Service Transition*)
- Detailed attention to the capturing, maintenance and fulfilment of service requests as performed through request fulfilment (see *ITIL Service Operation*).

### 4.2.3 Value to the business

The service catalogue provides a central source of information on the IT services delivered by the service provider organization. This ensures that all areas of the business can view an accurate, consistent picture of the IT services, their details and their status. It includes a customer-facing view (or views) of the IT services in use, how they are intended to be used, the business processes they enable, and the levels and quality of service the customer can expect for each service.

Through the work of service catalogue management, organizations can:

- Ensure a common understanding of IT services and improved relationships between the customer and service provider by utilizing the service catalogue as a marketing and communication tool
- Improve service provider focus on customer outcomes by correlating internal service provider activities and service assets to business processes and outcomes
- Improve efficiency and effectiveness of other service management processes by leveraging the information contained in or connected to the service catalogue
- Improve knowledge, alignment and focus on the 'business value' of each service throughout the service provider organization and its activities.

### 4.2.4 Policies, principles and basic concepts

Over the years, the IT infrastructures of organizations have grown and developed, and there may not be a clear picture of all the services currently being provided and the customers of each service. In order to establish an accurate picture, it is recommended that a service portfolio containing a service catalogue is produced and maintained to provide a central, accurate set of information on all services and to develop a service-focused culture.

**Definition: service catalogue**

The service catalogue is a database or structured document with information about all live IT services, including those available for deployment. The service catalogue is the only part of the service portfolio published to customers and is used to support the sale and delivery of IT services. The service catalogue includes information about deliverables, prices, contact points, ordering and request processes.

The service catalogue should contain details of all services currently being provided as well as those being prepared for transition to the live environment, a summary of their characteristics, and details of the customers and maintainers of each. A degree of 'detective work' may be needed to compile this list and agree it with the customers (sifting through old documentation, searching program libraries, talking with IT staff and customers, looking at procurement records, talking with suppliers and contractors etc.). If a CMS or any sort of asset database exists, these may provide valuable sources of information, although they should be verified before inclusion within either the overall service portfolio or the service catalogue.

During the service strategy stage as part of the service portfolio management process, a proposed new or significantly changed service will enter the service pipeline and due diligence will be undertaken to decide if the service will indeed move forward. This work should include participation by those involved in service design, transition, operation and improvement to ensure an informed decision. Once a service has been 'chartered' (see section 4.2 in *ITIL Service Strategy*, as well as section 3.7.2 in this publication), and it is being developed for use by customers, service design produces the detailed specifications for the service. It is at this point that a listing for the service should begin to be developed for inclusion in the service catalogue (at the appropriate time as per policy).

#### *4.2.4.1 Policies*

Each organization should develop and maintain a policy with regard to both the overall service portfolio and the constituent service catalogue, relating to the services recorded within them and what details are recorded (including what statuses

are recorded for each of the services). The policy should also contain details of responsibilities for each section of the overall service portfolio and the scope of each of the constituent sections. This will include policies regarding when a service is published in the service catalogue as well as when it will be removed from the service catalogue and appear only in the retired services section of the service portfolio. For more information regarding the design of the service portfolio and recommendations regarding its constituent sections, see section 3.7.2.

The service catalogue management process produces and maintains the service catalogue, ensuring that a central, accurate and consistent source of data is provided, recording the status of all operational services or services being transitioned to the live environment, together with appropriate details of each service. The services that should be included in the catalogue will be based on the organization's predefined policies.

#### 4.2.4.2 Defining services

What is a service? This question is not as easy to answer as it may first appear, and many organizations have failed to come up with a clear definition in an IT context. IT staff often confuse a 'service' as perceived by the customer with an IT system. In many cases, one 'service' can be made up of other 'services' (and so on), which are themselves made up of one or more IT systems within an overall infrastructure including hardware, software and networks, together with environments, data and applications. When two or more services are combined, this is called a service package.

Each organization needs to develop a policy of what a service is and how it is to be defined and agreed. A good starting point is often to ask customers what IT services they use and how those services map onto and support their business processes. Customers often have a greater clarity of what they believe a service to be.

The details of this policy will be influenced by many factors, including:

- Anticipated uses for the service catalogue, i.e.:
  - Marketing services to customers
  - Communication with customers about services on an ongoing basis
  - Reference by service provider staff regarding services and their dependencies and interfaces
  - Reference for users regarding services offered and their terms
  - Information source on how and where to place requests in relation to the services in the catalogue
- Target audiences of the service catalogue
- Current organizational culture, practices and maturity levels.

Over time an organization's policy regarding defining and naming services may evolve significantly. The key test of success is the degree to which the policy supports more effective and efficient service provisioning. (Note that this discussion refers to the definition of services, not service requests. For information on service requests and the request fulfilment process, see section 4.3 in *ITIL Service Operation*.)

#### 4.2.4.3 Different types of service

To avoid confusion, it may be useful to define a hierarchy of services within the service catalogue, by qualifying exactly what type of service is recorded. The most valuable distinction is between:

- **Customer-facing services** IT services that are seen by the customer. These are typically services that support the customer's business units/business processes, directly facilitating some outcome or outcomes desired by the customer.
- **Supporting services** IT services that support or 'underpin' the customer-facing services. These are typically invisible to the customer, but essential to the delivery of customer-facing IT services.

Supporting services may be of many different types or go by many different names, such as infrastructure services, network services, application services or technical services. Whatever terms are used by a service provider to describe the different types of supporting service they may choose to recognize, the use and scope of each term should be clearly defined and agreed within the organization to avoid confusion. (In this context, the type of service has to do with relevance of a service to a particular group or audience or its role in the service chain. For a discussion of the different types of service relating

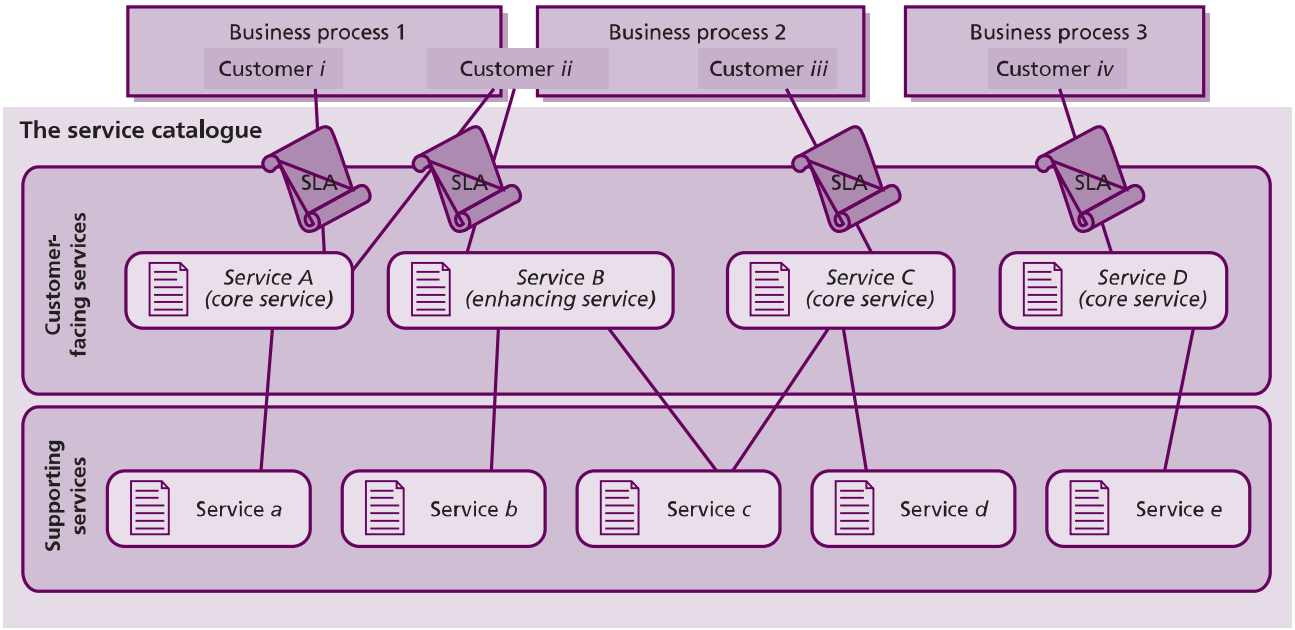



*Figure 4.3 Types of service in a service catalogue*

to service packaging and value creation, see *ITIL Service Strategy*, section 3.2.2.)

Figure 4.3 shows the two key types of service and an example of how they can be linked to each other and to the business customers and business processes they support. (The customer-facing services shown also reflect concepts from *ITIL Service Strategy* regarding service classifications for service packaging. Two of the three service classifications are highlighted in this particular example: core services and enhancing services.) The figure also shows one simple service package consisting of one core service and one enhancing service, with a single service level agreement (SLA) covering the package. The remaining services are all covered by their own SLAs. (While the SLA documents themselves are not part of the service catalogue, many pieces of information from the SLAs may be included in the service catalogue listings and the actual SLA documents may be accessible via the service catalogue.)

### 4.2.4.4 Service catalogue uses

The catalogue is useful in developing solutions for customers from one or more services. Items in the catalogue can be configured and suitably priced to fulfil a particular need. The service catalogue is an important tool for service strategy because it is the virtual projection of the service provider's actual and present capabilities. Many customers are only interested in what the provider can commit now, rather than in the future.

The service catalogue can be used by many different groups for many different purposes. Customers can use the service catalogue to understand what the service provider can do for them and to interact with the service provider regarding the services. Staff members of the service provider can use the service catalogue to understand how supporting services and service provider resources and capabilities support business activity. Users or individual consumers of a service can use the service catalogue to understand the scope of services available and to learn how to place service requests and/or report incidents associated with the provided services.

The service catalogue details each service and provides links to the service components that make up each one. By linking to the detailed information in the CMS, the service catalogue also provides an overview of the assets, processes and systems involved in each service. In order to define, document and maintain these links, the service catalogue management process should have appropriate interfaces with the service asset and configuration management process. Through their coordinated efforts these two processes provide a wealth of detailed information that is critical to long-term service management maturity and excellence in service provisioning.

The service catalogue acts as the acquisition portal for customers, including pricing and service-level commitments, and the terms and conditions for service provisioning. The service catalogue frequently also contains links to details about standard service requests, enabling users to request those services using the appropriate channels. In automated service catalogues, access to these service requests may be initiated in the service catalogue tool and then routed to the appropriate request fulfilment procedure.

The service catalogue can be used for other service management purposes (e.g. for performing a business impact analysis [BIA] as part of IT service continuity planning, or as a starting place for re-distributing workloads, as part of capacity management). The cost and effort of producing and maintaining the catalogue, with its relationships to the supporting technology components, is therefore easily justifiable. If done in conjunction with prioritization of the BIA, it is then possible to ensure that the most important services are covered first.

#### 4.2.4.5 Service catalogue structure

The structure and presentation of the service catalogue should support the uses to which it will be put, taking into consideration the different, sometimes conflicting needs of different audiences. Not every service is of interest to every person or group. Not every piece of information about a service is of interest to every person or group. When service providers have many customers or serve many businesses, there may be multiple service catalogue views projected from the service portfolio.

When initially completed, the service catalogue may consist of a matrix, table or spreadsheet. (An example of a simple service catalogue matrix that can be used as a starting point is given in Appendix G.) Many organizations integrate and maintain their service portfolio and service catalogue as part of their CMS. By defining each service as a CI and, where appropriate, relating these to form a service hierarchy, the organization is able to relate such things as incidents and requests for change to the services affected, thus providing the basis for service monitoring and reporting using an integrated tool (e.g. 'list or give the number of incidents affecting this particular service'). It is therefore essential that changes within the service portfolio and its constituent service catalogue are subject to the change management process.

It is advisable to present more than one view of the information in the service catalogue to accommodate the different needs of those who will use it. In order to ensure that both the customer and IT have a clear understanding of the relationship between the outcome-based, customer-facing services (see section 2.1.1 as well as section 3.4.3 in *ITIL Service Strategy*) and the business processes they support, it is recommended that a service provider, at the minimum, defines two different views, each one focusing on one type of service: a view for customers that shows the customer-facing services, and a second view for the IT service provider showing all the supporting services. The data stored in the service catalogue regarding relationships and dependencies between items would allow information in one view to be accessed from another, when deemed appropriate.

##### *Sample service catalogue presentations*

Figure 4.4 shows a service catalogue with two views:

- **The business/customer service catalogue view** This contains details of all the IT services delivered to the customers (customer-facing services), together with relationships to the business units and the business processes that rely on the IT services. This is the customer view of the service catalogue. In other words, this is the service catalogue for the business to see and use.
- **The technical/supporting service catalogue view** This contains details of all the supporting IT services, together with relationships to the customer-facing services they underpin and the components, CIs and other supporting services necessary to support the provision of the service to the customers.

Some organizations maintain a service catalogue that includes only the customer-facing services, while others maintain information only on the supporting services. The preferred situation adopted by the more mature organizations maintains both types of service within a single service catalogue, which is in turn part of a totally integrated service portfolio. (More information on the design and contents of a service catalogue is contained in Appendix G.) Some organizations project more than two views. There is no correct or

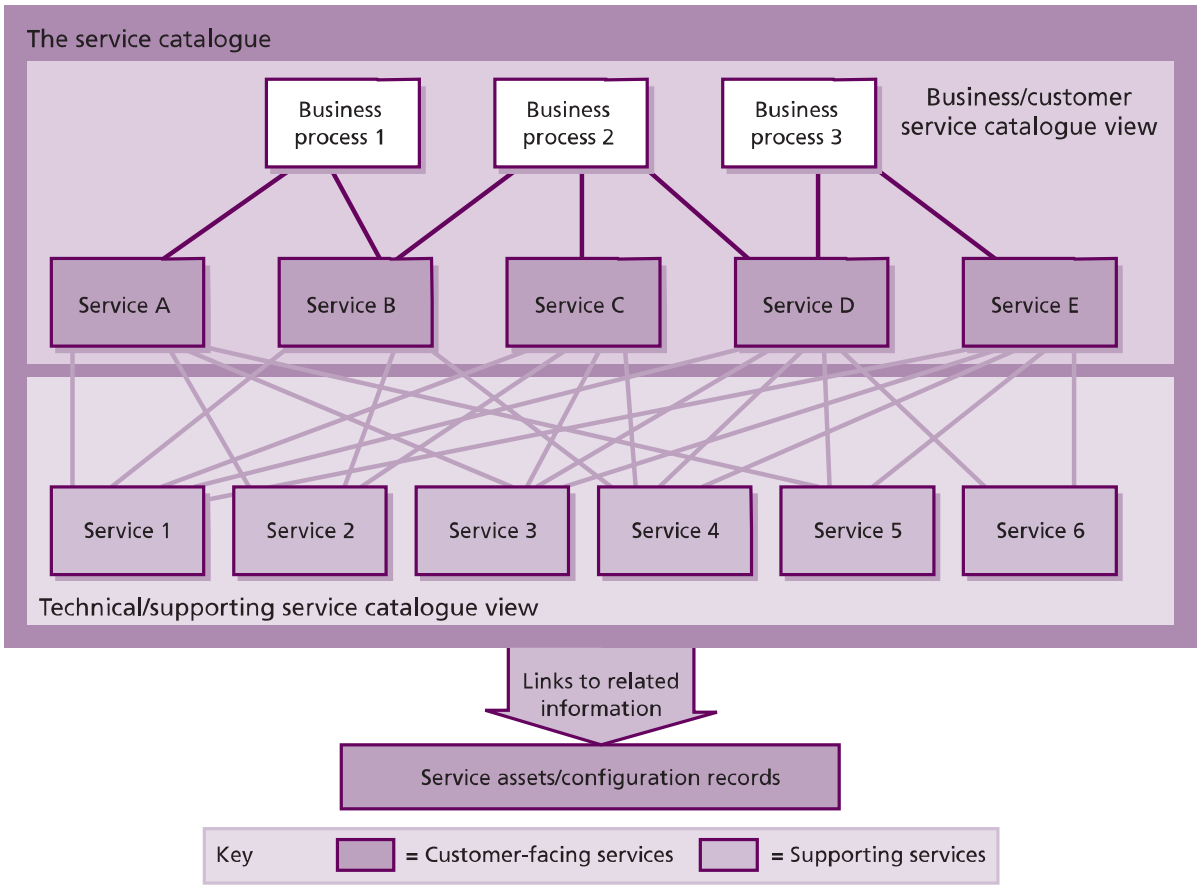



*Figure 4.4 A two-view service catalogue*

suggested number of views an organization should project. The number of views projected will depend upon the audiences to be addressed and the uses to which the catalogue will be put.

Figure 4.5 shows a service catalogue with three views:

- **Wholesale customer view** This contains details of all the IT services delivered to wholesale customers (customer-facing services), together with relationships to the customers they support.
- **Retail customer view** This contains details of all the IT services delivered to retail customers (customer-facing services), together with relationships to the customers they support.
- **Supporting services view** This contains details of all the supporting IT services, together with relationships to the customer-facing services they underpin and the components, CIs and other supporting services necessary to support the provision of the service to the customers.

Note in this example how customer-facing service C appears in both the wholesale view and the retail view. It is also possible that the different views might reflect hierarchical relationships beyond one level of customer and one level of supporting service. Services are also likely to be packaged and then service packages will be shown in the appropriate service catalogue view(s).

The customer-facing service catalogue view facilitates the development of a much more proactive or even pre-emptive service level management (SLM) process and supports close business alignment with clearly defined relationships between services and SLAs. The supporting service catalogue view is extremely beneficial when constructing the relationship between services, SLAs, operational level agreements (OLAs) and other underpinning agreements and components, as it will identify the technology required to support a service and the support group(s) that support the components. The combination of all views is invaluable for quickly

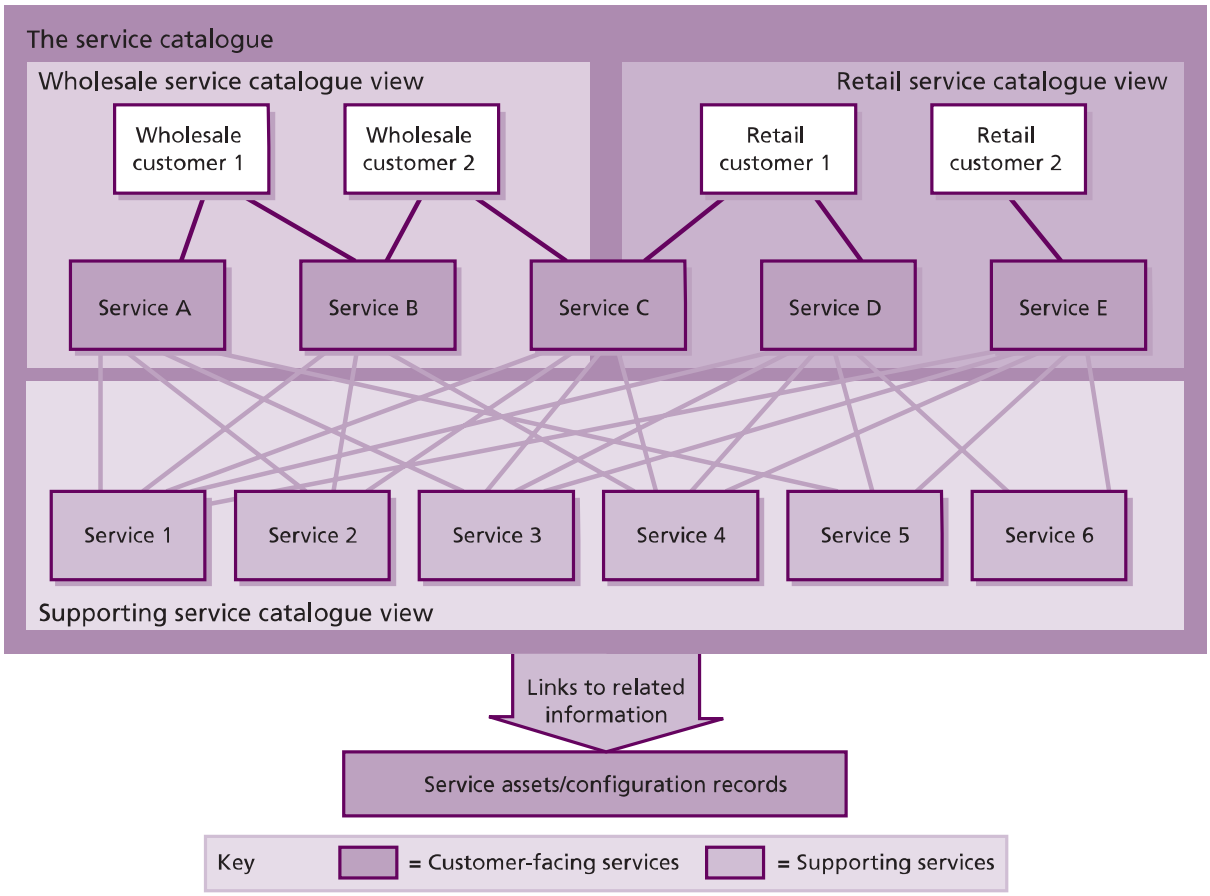



*Figure 4.5 A three-view service catalogue*

assessing the impact of incidents and changes on the business.

There is no single correct way to structure and deploy a service catalogue. Each service provider organization will consider its goals, objectives and uses for the service catalogue and create a structure that will meet its current and evolving needs appropriately.

### 4.2.5 Process activities, methods and techniques

The key activities within the service catalogue management process should include:

- Agreeing and documenting a service definition and description for each service with all relevant parties
- Interfacing with service portfolio management to agree the contents of the service portfolio and service catalogue
- Producing and maintaining an accurate service catalogue and its contents, in conjunction with the overall service portfolio
- Interfacing with the business and ITSCM on the dependencies of business units and their business processes with the customer-facing IT services contained within the service catalogue
- Interfacing with support teams, suppliers and service asset and configuration management on interfaces and dependencies between IT services and the supporting services, components and CIs contained within the service catalogue
- Interfacing with business relationship management and SLM to ensure that the information is aligned to the business and business process.

### 4.2.6 Triggers, inputs, outputs and interfaces

#### *4.2.6.1 Triggers*

The triggers for the service catalogue management process are changes in the business requirements and services, and therefore one of the main triggers is RFCs and the change management

process. This will include new services, changes to existing services or services being retired.

#### 4.2.6.2 Inputs

A number of sources of information are relevant to the service catalogue management process. These include:

- Business information from the organization's business and IT strategy, plans and financial plans, and information on their current and future requirements from the service portfolio
- BIA, providing information on the impact, priority and risk associated with each service or changes to service requirements
- Business requirements: details of any agreed, new or changed business requirements from the service portfolio
- The service portfolio and all related data and documents
- The CMS
- RFCs
- Feedback from all other processes.

#### 4.2.6.3 Outputs

The process outputs of the service catalogue management process are:

- The documentation and agreement of a 'definition of the service'
- Updates to the service portfolio: should contain the current status of all services and requirements for services
- Updates to RFCs
- The service catalogue: should contain the details and the current status of every live service provided by the service provider or service being transitioned into the live environment, together with the interfaces and dependencies.

#### 4.2.6.4 Interfaces

Every service provider process uses the service catalogue, so it could be said that the service catalogue management process interfaces with all processes, but some of the most prominent interfaces include:

- **Service portfolio management** This process determines which services will be chartered and therefore move forward for eventual inclusion in the service catalogue, as well as defining critical information regarding each service or potential service, including any agreed service packages and service options.
- **Business relationship management** This process ensures that the relationship between the service and the customer(s) who require it is clearly defined in terms of how the service supports the customer(s) needs.
- **Service asset and configuration management** This process works collaboratively with service catalogue management to ensure that information in the CMS and information in the service catalogue are appropriately linked together to provide a consistent, accurate and comprehensive view of the interfaces and dependencies between services, customers, business processes and service assets, and CIs.
- **SLM** This process negotiates specific levels of service warranty to be delivered which will be reflected in the service catalogue.
- **Demand management** In conjunction with service portfolio management, this process determines how services will be composed into service packages for provisioning and assists service catalogue management in ensuring that these packages are appropriately represented in the service catalogue.

### 4.2.7 Information management

The key information within the service catalogue management process is that which is contained within the service catalogue. The main input for this information comes from the service portfolio and the business via either the business relationship management or SLM processes. This information needs to be verified for accuracy before being recorded within the service catalogue. The information and the service catalogue itself need to be maintained using the change management process.

There are many different approaches to managing service catalogue information including:

- Intranet solutions built by the service provider organization leveraging technology already in place
- Commercially available solutions designed for service catalogue management
- Solutions that are part of a more comprehensive service management suite.

The service catalogue data may be held in a single repository, or multiple repositories. Some service providers may maintain the data that supports different views of the service catalogue in different locations or toolsets. For example, detailed data for supporting services may be stored in the CMS and presented via the same interface used to access other service asset and configuration data, while data on customer-facing services may be in a browser-based application and presented to customers via the corporate intranet.

When constructing different views of the service catalogue, the service provider should consider which services (rows of data) and which data elements or fields (columns of data) should be included in each view. For example, while details of relationships of supporting services may be important to include in a view intended for staff members of the service provider, these details are typically of no interest to customers and would be excluded from a customer-facing view.

Integration with the service portfolio is critical here, as is the ability to access other closely related functionality, such as customers being able to view their service level agreement monitoring reports or to access a self-help portal for service requests. Some commercially available 'service catalogue' tools are maturing to offer management of the full service portfolio, from proposal through to retirement.

Each organization should consider carefully what solution will best serve its current and future needs. It is important, however, not to confuse the toolset used to present the service catalogue with the catalogue itself. An organization with a paper catalogue and an organization with a robust technical solution both still have a service catalogue.

### 4.2.8 Critical success factors and key performance indicators

The following list includes some sample CSFs for service catalogue management. Each organization should identify appropriate CSFs based on its objectives for the process. Each sample CSF is followed by a small number of typical KPIs that support the CSF. These KPIs should not be adopted without careful consideration. Each organization should develop KPIs that are appropriate for its level of maturity, its CSFs and its particular circumstances. Achievement against KPIs should be monitored and used to identify opportunities for improvement, which should be logged in the CSI register for evaluation and possible implementation. Thus we have:

- **CSF** An accurate service catalogue
  - **KPI** Increase in the number of services recorded and managed within the service catalogue as a percentage of those being delivered and transitioned in the live environment
  - **KPI** Percentage reduction in the number of variances detected between the information contained within the service catalogue and the 'real-world' situation
- **CSF** Business users' awareness of the services being provided
  - **KPI** Percentage increase in completeness of the customer-facing views of the service catalogue against operational services
  - **KPI** Percentage increase in business user survey responses showing knowledge of services listed in service catalogue
  - **KPI** Increase in measured business user access to intranet-based service catalogue
- **CSF** IT staff awareness of the technology supporting the services
  - **KPI** Percentage increase in completeness of supporting services against the IT components that make up those services
  - **KPI** Increase in service desk and other IT staff having access to information to support all live services, measured by the percentage of incidents with the appropriate service-related information.

### 4.2.9 Challenges and risks

#### *4.2.9.1 Challenges*

The major challenge facing service catalogue management is that of maintaining an accurate service catalogue as part of a service portfolio, incorporating all catalogue views as part of an overall CMS and SKMS. One approach may be to develop stand-alone spreadsheets or databases before trying to integrate the service catalogue and service portfolio within the CMS or SKMS. In order to achieve this, the culture of the organization needs to accept that the catalogue and portfolio are essential sources of information that everyone within the IT organization needs to

use and help maintain. This will often assist in the standardization of the service catalogue and the service portfolio and enable an improvement in cost performance through economies of scale.

#### *4.2.9.2 Risks*

The risks associated with the provision of an accurate service catalogue are:

- Inaccuracy of the data in the catalogue and it not being under rigorous change control
- Poor acceptance of the service catalogue and its usage in all operational processes. The more active the catalogue is, the more likely it is to be accurate in its content
- Inaccuracy of information received from the business, IT and the service portfolio, with regard to service information
- Insufficient tools and resources required to maintain the information
- Poor access to accurate change management information and processes
- Poor access to and support of appropriate and up-to-date CMS and SKMS for integration with the service catalogue
- Circumvention of the use of the service portfolio and service catalogue
- The information is either too detailed to maintain accurately or at too high a level to be of any value. It should be consistent with the level of detail within the CMS and the SKMS.

## 4.3 SERVICE LEVEL MANAGEMENT

SLM is a vital process for every IT service provider organization in that it is responsible for agreeing and documenting service level targets and responsibilities within SLAs and service level requirements (SLRs) for every service and related activity within IT. If these targets are appropriate and accurately reflect the requirements of the business, then the service delivered by the service providers will align with business requirements and meet the expectations of the customers and users in terms of service quality. If the targets are not aligned with business needs, then service provider activities and service levels will not be aligned with business expectations and problems will develop. The SLA is effectively a level of assurance or warranty with regard to the level of service quality delivered by the service provider for each of the services delivered to the business. The success of SLM is very dependent on the quality of the service portfolio and the service catalogue and their contents because they provide the necessary information on the services to be managed within the SLM process.

### 4.3.1 Purpose and objectives

The purpose of the SLM process is to ensure that all current and planned IT services are delivered to agreed achievable targets. This is accomplished through a constant cycle of negotiating, agreeing, monitoring, reporting on and reviewing IT service targets and achievements, and through instigation of actions to correct or improve the level of service delivered.

The objectives of SLM are to:

- Define, document, agree, monitor, measure, report and review the level of IT services provided and instigate corrective measures whenever appropriate
- Provide and improve the relationship and communication with the business and customers in conjunction with business relationship management
- Ensure that specific and measurable targets are developed for all IT services
- Monitor and improve customer satisfaction with the quality of service delivered
- Ensure that IT and the customers have a clear and unambiguous expectation of the level of service to be delivered
- Ensure that even when all agreed targets are met, the levels of service delivered are subject to proactive, cost-effective continual improvement.

### 4.3.2 Scope

SLM should provide a point of regular contact and communication to the customers and business managers of an organization in relation to service levels. In this context, it should represent the IT service provider to the business, and the business to the IT service provider. This activity should encompass both the use of existing services and the potential future requirements for new or changed services. SLM needs to manage the expectation and perception of the business, customers and users and ensure that the quality (warranty) of service delivered by the service provider is matched to those expectations and needs. In order to do this effectively, SLM should establish and maintain SLAs

for all current live services and manage the level of service provided to meet the targets and quality measurements contained within the SLAs. SLM should also produce and agree SLRs for all planned new or changed services that document warranty requirements.

This will enable SLM to ensure that all the services and components are designed and delivered to meet their targets in terms of business needs. The SLM process should include:

- Cooperation with the business relationship management process: this includes development of relationships with the business as needed to achieve the SLM process objectives
- Negotiation and agreement of future service level requirements and targets, and the documentation and management of SLRs for all proposed new or changed services
- Negotiation and agreement of current service level requirements and targets, and the documentation and management of SLAs for all operational services
- Development and management of appropriate OLAs to ensure that targets are aligned with SLA targets
- Review of all supplier agreements and underpinning contracts with supplier management to ensure that targets are aligned with SLA targets
- Proactive prevention of service failures, reduction of service risks and improvement in the quality of service, in conjunction with all other processes
- Reporting and management of all service level achievements and review of all SLA breaches
- Periodic review, renewal and/or revision of SLAs, service scope and OLAs as appropriate
- Identifying improvement opportunities for inclusion in the CSI register
- Reviewing and prioritizing improvements in the CSI register
- Instigating and coordinating SIPs for the management, planning and implementation of service and process improvements.

The SLM process does not include:

- Negotiation and agreement of requirements for service functionality (utility), except to the degree functionality influences a service level requirement or target. SLAs typically describe key elements of the service's utility as part of the service description, but SLM activity does not include agreeing what the utility will be.
- Detailed attention to the activities necessary to deliver service levels that are accounted for in other processes such as availability management and capacity management.
- Negotiation of underpinning supplier contracts and agreements. This is part of the supplier management process to which SLM provides critical input and consultation.

#### *4.3.2.1 Business relationship management and service level management*

While the SLM process exists to ensure that agreed achievable levels of service are provided to the customer and users, the business relationship management process is focused on a more strategic perspective. Business relationship management takes as its mission the identification of customer needs and ensuring that the service provider is able to meet the customers' needs. This process focuses on the overall relationship between the service provider and their customer, working to determine which services the service provider will deliver. See section 4.5 of *ITIL Service Strategy* for a detailed discussion of business relationship management and the relationship between it and the SLM process.

### 4.3.3 Value to the business

SLM provides a consistent interface to the business for all service-level-related issues. It provides the business with the agreed service targets and the required management information to ensure that those targets have been met. Where targets are breached, SLM provides feedback on the cause of the breach and details of the actions taken to prevent the breach from recurring. Thus SLM provides a reliable communication channel and a trusted relationship with the appropriate customers and business representatives at a tactical level.

### 4.3.4 Policies, principles and basic concepts

SLM is the name given to the process of ensuring that the required and cost-justifiable service quality is maintained and gradually improved by planning, coordinating, drafting, agreeing, monitoring and reporting of SLAs, and the ongoing review of

service achievements. SLM is not only concerned with ensuring that current services and SLAs are managed, but it is also involved in ensuring that new service level requirements are captured and that new or changed services and SLAs are developed to match the business needs and expectations. SLAs provide the basis for managing the relationship between the service provider and the customer, and SLM provides that central point of focus for a group of customers, business units or lines of business.

An SLA is a written agreement between an IT service provider and the IT customer(s), defining the key service targets and responsibilities of both parties. The emphasis must be on agreement, and SLAs should not be used as a way of holding one side or the other to ransom. A true partnership should be developed between the IT service provider and the customer, so that a mutually beneficial agreement is reached – otherwise the SLA could quickly fall into disrepute and a 'blame culture' could develop that would prevent any true service quality improvements from taking place. An SLA will typically define the warranty a service is to deliver and describe the utility of the service.

An OLA is an agreement between an IT service provider and another part of the same organization that assists with the provision of services – for instance, a facilities department that maintains the air conditioning, or network support team that supports the network service. An OLA should contain targets that underpin those within an SLA to ensure that targets will not be breached by failure of the supporting activity.

SLM is responsible for ensuring that all targets and measures agreed with the business in SLAs are supported by appropriate OLAs with internal support units and underpinning contracts with external partners and suppliers. In the case of the latter, this is the contribution that SLM makes to supplier management, which has primary responsibility for the relationship between the IT service provider and its suppliers. This SLM hierarchy is illustrated in Figure 3.7 in Chapter 3.

Figure 3.7 shows the relationship between the business and its processes and the services, and the associated technology, supporting services, teams and suppliers required to meet their needs. It demonstrates how important the SLAs, OLAs and underpinning contracts are in defining and achieving the level of service required by the business.

#### 4.3.4.1 Policies

The service provider should establish clear policies for the conduct of the SLM process. Policies typically will define such things as the minimum required content of SLAs and OLAs, when and how agreements are to be reviewed, renewed, revised and/or renegotiated, and how frequently and using what methods service level reporting will be provided.

Of particular importance will be agreeing policies between SLM and supplier management, as the performance of suppliers can be the critical element in the achievement of end-to-end service level commitments.

#### 4.3.4.2 Contracts and agreements

The terminology used in this publication is expressed from the point of view of the IT service provider, particularly as it relates to underpinning contracts and agreements. When an IT service provider engages a third-party supplier to provide goods and/or services that are needed for the provision of service to the IT customer(s), it is important that both parties have clear and unambiguous expectations of how the supplier will meet the IT service provider's requirements. This is accomplished by documenting the terms of engagement in an agreement of some sort and this agreement supports or 'underpins' the service level targets in the SLA with the customer. If the agreement is legally binding, it is referred to as a 'contract', or more precisely an 'underpinning contract'. When the document in question simply describes the formal understanding between the two parties, but is not legally binding, the more generic term 'agreement' may be used.

It should be noted that, while not referred to here as an SLA, the contract or agreement with a supplier will typically include specified service levels to be delivered by the supplier in relation to the services contracted and may be considered by the supplier to be or include an SLA.

It should also be noted that the SLA itself between the IT service provider and the customer(s) will vary in nature, depending on the type of service provider. For example, if the IT service provider is Type I or Type II, the SLA is likely to be an internal

document and not legally binding; however, if the IT service provider is Type III, then the SLA is more likely to be included as a schedule or specification in a legally binding contract with the customer (see glossary for definitions of Types I, II and III service providers).

In addition to the formal relationship between IT service provider and supplier, it is also important that internal contributors to IT service provision have clear expectations of their responsibilities and commitments. These responsibilities may be documented in OLAs which are defined as agreements between an IT service provider and another part of the same organization. They support the IT service provider's delivery of IT services to customers and define the goods or services to be provided and the responsibilities of both parties.

For purposes of simplicity, the term 'underpinning contract' is used here to refer to any kind of agreement or contract between an IT service provider and a supplier that supports the delivery of service to the customer. The term SLA is used to refer to an agreement between the IT service provider and the customer(s) only. 'Underpinning agreements' is a more generic term used to refer to all OLAs, and contracts or other agreements that underpin the customer SLAs.

### 4.3.5 Process activities, methods and techniques

The key activities within the SLM process should include:

- Determining, negotiating, documenting and agreeing requirements for new or changed services in SLRs, and managing and reviewing them through the service lifecycle into SLAs for operational services
- Monitoring and measuring service performance achievements of all operational services against targets within SLAs
- Producing service reports
- Conducting service reviews, identifying improvement opportunities for inclusion in the CSI register, and managing appropriate SIPs
- Collating, measuring and improving customer satisfaction, in cooperation with business relationship management
- Reviewing and revising SLAs, service scope, and OLAs
- Assisting supplier management to review and revise underpinning contracts or agreements
- Developing and documenting contacts and relationships with the business, customers and other stakeholders, in cooperation with the business relationship management process
- Logging and managing complaints and compliments, in cooperation with business relationship management
- Providing appropriate management information to aid performance management and demonstrating service achievement.

These other activities within the SLM process support the successful execution of the key activities:

- Designing SLA frameworks
- Developing, maintaining and operating SLM procedures, including procedures for logging, actioning and resolving all complaints, and for logging and distributing compliments
- Making available and maintaining up-to-date SLM document templates and standards
- Assisting with the design and maintenance of the service catalogue.

Figure 4.6 illustrates many of the interfaces between the main activities and interfaces with two other service management processes. (Note: the arrows in this diagram are not intended to define all interfaces exactly, but rather to illustrate how highly dependent on and interactive with each other all the activities of SLM are.)

Although Figure 4.6 illustrates all the main activities of SLM as separate activities, they should be implemented as one integrated SLM process that can be consistently applied to all areas of the business and to all customers. The main activities, as well as several of the other SLM activities, are described in the following sections.

The activity of 'designing SLA frameworks' is presented first, as an organization needs to determine the frameworks before it can begin negotiating agreements.

#### *4.3.5.1 Designing SLA frameworks*

Using the service catalogue as an aid, SLM must design the most appropriate SLA structure to ensure that all services and all customers are covered in a manner best suited to the

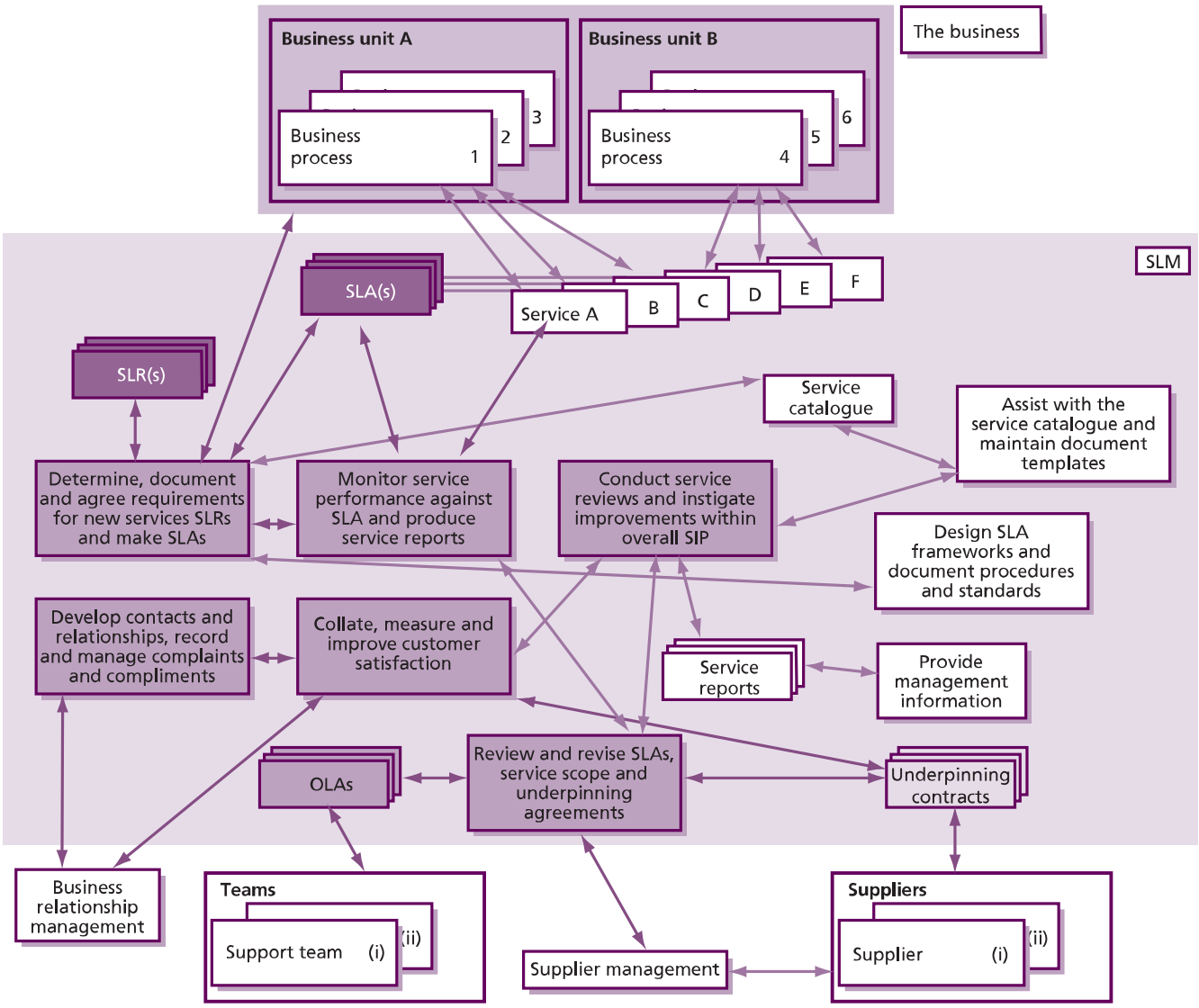



*Figure 4.6 The service level management process*

organization's needs. There are a number of potential options, including the following.

### *Service-based SLA*

This is where an SLA covers one service, for all the customers of that service – for example, an SLA may be established for an organization's email service, covering all the customers of that service. This may appear fairly straightforward. However, difficulties may arise if the specific requirements of different customers vary for the same service, or if characteristics of the infrastructure mean that different service levels are inevitable (e.g. head office staff may be connected via a high-speed LAN, while local offices may have to use a lower-speed WAN line). In such cases, separate targets may be needed within the one agreement. Difficulties may also arise in determining who should be the signatories to such an agreement. However, where common levels of service are provided across all areas of the business (for example, email or telephony), the service-based SLA can be an efficient approach to use. Multiple classes of service (for example, gold, silver and bronze) can also be used to increase the effectiveness of service-based SLAs.

### *Customer-based SLA*

This is an agreement with an individual customer group, covering all the services they use. For example, agreements may be reached with an organization's finance department covering, say, the finance system, the accounting system, the payroll system, the billing system, the procurement

system, and any other IT systems that they use. Customers often prefer such an agreement, as all of their requirements are covered in a single document. Only one signatory is normally required, which simplifies this issue.

**Hints and tips**

A combination of either customer- or service-based SLA structures might be appropriate, providing all services and customers are covered, with no overlap or duplication.

### *Multi-level SLAs*

Some organizations have chosen to adopt a multi-level SLA structure. For example, a three-layer structure might look as follows:

- **Corporate level** This will cover all the generic SLM issues appropriate to every customer throughout the organization. These issues are likely to be less volatile, so updates are less frequently required.
- **Customer level** This will cover all SLM issues relevant to the particular customer group or business unit, regardless of the service being used.
- **Service level** This will cover all SLM issues relevant to the specific service, in relation to a specific customer group (one for each service covered by the SLA).

As shown in Figure 4.7, such a structure allows SLAs to be kept to a manageable size, avoids unnecessary duplication, and reduces the need for frequent updates. However, it does mean that extra effort is required to maintain the necessary relationships and links within the service catalogue and the CMS.

Many organizations have found it valuable to produce standards and a set of pro-formas or templates that can be used as a starting point for all SLAs, SLRs and OLAs. The pro-forma can often be developed alongside the draft SLA. Developing standards and templates will ensure that all agreements are developed in a consistent manner, and this will ease their subsequent use, operation and management. Guidance on the items to be included in an SLA is given in Appendix F.

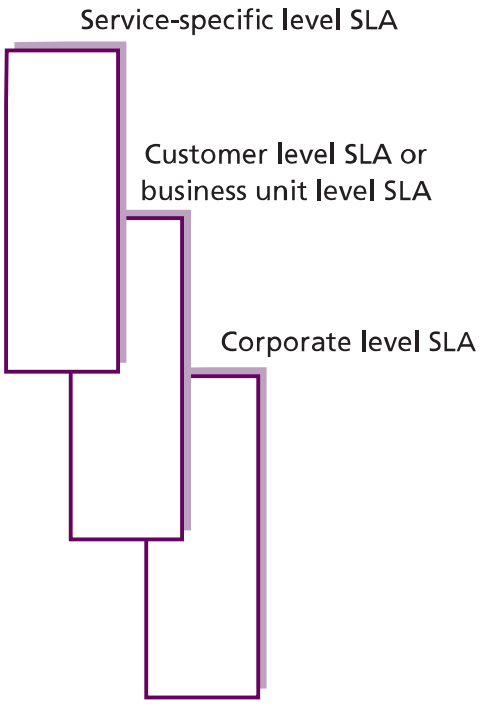



***Figure 4.7 Multi-level SLAs***

**Hints and tips**

Make roles and responsibilities a part of the SLA. Consider three perspectives – the IT provider, the IT customer and the actual users.

The wording of SLAs should be clear and concise and leave no room for ambiguity. There is usually no need for agreements to be written in legal terminology, and plain language aids a common understanding. It is often helpful to have an independent person, who has not been involved with the drafting, to do a final read-through. This often identifies potential ambiguities and difficulties that can then be addressed and clarified. For this reason alone, it is recommended that all SLAs contain a glossary, defining any terms and providing clarity for any areas of ambiguity.

It is also worth remembering that SLAs may have to cover services offered internationally. In such cases the SLA may have to be translated into several languages. Remember also that an SLA drafted in a single language may have to be reviewed for suitability in several different parts of the world (i.e. a version drafted in Australia may have to be reviewed for suitability in the USA or the UK), so differences in terminology, style and culture must be taken into account.

Where the IT services are provided to another organization by an external service provider, sometimes the service targets are contained within a contract and at other times they are contained within an SLA or schedule attached to the contract. Whatever document is used, it is essential that the targets documented and agreed are clear, specific and unambiguous, as they will provide the basis of the relationship and the quality of service delivered.

#### *4.3.5.2 Determining, documenting and agreeing requirements for new services and producing SLRs*

This is one of the earliest activities within the service design stage of the service lifecycle. Once the service catalogue has been produced and the SLA structure has been agreed, the first SLRs must be drafted. An SLR is a customer requirement for an aspect of an IT service. SLRs are based on business objectives and are used to negotiate agreed service level targets. SLRs relate primarily to the warranty of the service: What levels of service are required by the customer in order for them to be able to receive the value of the utility of the service? How available does the service need to be? How secure? How quickly must it be restored if it should fail?

While many organizations have to give initial priority to introducing SLAs for existing services, it is also important to establish procedures for agreeing service level requirements for new services being developed or procured. The SLRs should be an integral part of the overall service design criteria which also include the functional or 'utility' specifications. SLRs should, from the very start, form part of the testing/trialling criteria as the service progresses through the stages of design and development or procurement.

It is advisable to involve customers from the outset, but rather than approaching customers with a 'blank page', it may be better to produce an outline SLR draft with potential performance targets and management and operational requirements, as a starting point for more detailed and in-depth discussion. Be careful, though, not to go too far and appear to be presenting the customer with a 'fait accompli' as this may unnecessarily limit open and productive dialogue. In order to ensure a focus on required business outcomes, it is important to maintain clarity in the difference between the SLR and the specific service level target(s) associated with the achievement of the SLR. For example, an SLR relating to performance might be expressed by the customer as 'fast enough to support the anticipated volume of orders to be placed during peak activity periods without failures or delays', while the service level target negotiated to support this requirement will define specific, measurable response times and the conditions under which the target will be deemed to have been breached.

**Key message**

Determining the high-level, business objective-oriented SLRs will typically begin during the service strategy stage as part of defining the information needed to make the strategic decision to charter and fund the service. The service portfolio management and business relationship management processes are very involved in this high-level warranty determination. Once the service charter has been issued, the SLM process continues the work of determining any additional SLRs and refining all SLRs to the detailed, measurable level needed for design of the service solution.

It cannot be over-stressed how difficult this activity of determining the initial targets for association with an SLR (or eventual inclusion in an SLA) is. Representatives of all of the other processes need to be consulted for their opinion on what targets can be realistically achieved, such as consulting incident management on incident targets. The capacity and availability management processes will be of particular value in determining appropriate service availability and performance targets. If there is any doubt, provisional targets should be included within a pilot SLA that is monitored and adjusted through an early life support period, as illustrated in Figure 3.8.

In developing SLRs, it can be difficult to draw out true business requirements, as the business may not know what it wants – especially if not asked previously. The business may need help in understanding and defining its needs, particularly in terms of capacity, security, availability and IT service continuity. Be aware that the requirements initially expressed may not be those ultimately agreed. The customer may describe what is wanted/needed, after which the service provider must investigate what is possible, along with the

associated costs and risks of available options, presenting this information to the customer to revisit the originally stated requirement. Several iterations of negotiations may be required before an affordable balance is struck between what is sought and what is achievable and affordable. This process may involve a redesign of the service solution each time an SLR and associated service level targets are revised.

If new services are to be introduced in a seamless way into the live environment, another area that requires attention is the planning and formalization of the support arrangements for the service and its components. Advice should be sought from change management and service asset and configuration management to ensure the planning is comprehensive and covers the implementation, deployment and support of the service and its components. Specific responsibilities need to be defined and added to existing underpinning contracts/OLAs, or new ones need to be agreed. The support arrangements and all escalation routes also need adding to the CMS, including the service catalogue where appropriate, so that the service desk and other support staff are aware of them. Where appropriate, initial training and familiarization for the service desk and other support groups and knowledge transfer should be completed before live support is needed.

The definition and agreement of OLAs are likely to be highly iterative, particularly in an organization with immature SLM. Many different groups or functions may need to commit to OLAs. Proposed requirements must be compared with what can actually be delivered by each group so that commitments are realistic. The individual requirements for each group, along with the contributions from suppliers as documented in underpinning contracts, must result in an integrated, well-coordinated service delivery that appropriately supports the overall SLR targets.

Once clearly defined SLRs have been determined, associated initial service level targets will gradually be refined as the service progresses through the stages of its lifecycle, until they eventually become part of a pilot SLA during the early life support period. See section 4.3.5.3 for a discussion of pilot SLAs.

#### *4.3.5.3 Negotiating, documenting and agreeing SLAs for operational services*

Before a new or changed service is accepted into live operation, an SLA should be agreed, detailing the service level targets to be achieved and specifying the responsibilities of both the IT service provider and the customer. For a new service, the targets in the SLA are likely to originate from SLRs developed early in the service design stage. For changes to existing services, targets may also be defined in this way – as part of SLR development, particularly if the change to the service is significant, or the new targets may simply be refinements to targets in an existing SLA.

If an organization is just beginning to establish SLM and does not yet have SLAs in place for existing services, the process of defining them may require monitoring, measuring and reporting on the current levels of service being delivered and using this information to inform negotiations with customers to establish acceptable targets.

**Key message: Only use measurable targets**

There may be a temptation to agree to targets that cannot be adequately measured, but only measurable targets should be included in the SLA.

Using the SLRs or other information from the customer about the required service levels, a pilot or draft SLA should be developed. The SLA should be developed alongside the development of the service itself and gradually refined, formalized and signed before the service is introduced into live use. The development and finalization of the SLA is an iterative process necessitating the alignment of many contributions and dependencies. As SLA targets are drafted, SLM must work with all those involved in service provision, ensuring that the targets are achievable and that both internal support teams and external suppliers have clear and unambiguous expectations of what will be required of them to support the achievement of the SLA targets. OLAs and underpinning contracts or other agreements should be updated or created to ensure clarity and to identify how supporting efforts will be measured and managed.

After the new or changed service has been deployed, the pilot SLA with supporting OLAs and underpinning contracts should be ready and

reporting mechanisms in place. During the early life support period, achievements against the targets should be measured, confirming either that the targets can be met, or that adjustment is required. Preference, of course, is given to revising the service provision to meet the targets rather than revising the targets themselves, but regardless of which adjustment is undertaken, it must be mutually agreed by the customer and service provider prior to signing of the final SLA.

At the end of the drafting, negotiating and piloting process, it is important to ensure that the SLA is actually signed by the appropriate managers on the customer and IT service provider sides. This gives a firm commitment by both parties that every attempt will be made to meet the agreement. Generally speaking, the more senior the signatories are within their respective organizations, the stronger the message of commitment. Once an SLA is agreed, wide publicity needs to be used to ensure that customers, users and IT staff alike are aware of its existence and of the key targets.

Steps must be taken to advertise the existence of the new SLAs and OLAs among the service desk and other support groups, with details of when they become operational. It may be helpful to extract key targets from these agreements into tables that can be on display in support areas, so that staff are always aware of the targets to which they are working. If support tools allow, these targets should be recorded within the tools, such as within a service catalogue or CMS, so that their content can be made widely available to all personnel. They should also be included as thresholds and automatically alerted against when a target is threatened or actually breached. SLAs, OLAs and the targets they contain must also be publicized amongst the user community, so that users are aware of what they can expect from the services they use, and know at what point to start expressing dissatisfaction.

It is important that the service desk staff are committed to the SLM process and become proactive ambassadors for SLAs, embracing the necessary service culture, as they are the first contact point for customers' incidents, complaints and queries. If the service desk staff are not fully aware of the SLAs in place, and do not act on their contents, customers very quickly lose faith in SLAs.

It should be noted that additional support resources (i.e. more staff) may be needed to support new or significantly changed services. There is often an expectation that an already overworked support group can magically cope with the additional effort imposed by a new service. If this expectation is unrealistic, service level targets relating to support may be endangered or even breached.

#### *4.3.5.4 Monitoring service performance against SLA*

Nothing should be included in an SLA unless it can be effectively monitored and measured at a commonly agreed point. The importance of this cannot be overstressed, as inclusion of items that cannot be effectively monitored almost always results in disputes and eventual loss of faith in the SLM process. Many organizations have discovered this the hard way and as a result have absorbed heavy costs, both in a financial sense as well as in terms of negative impacts on their credibility.

**Anecdote: Mismatched measurements**

A global network provider agreed availability targets for the provision of a managed network service. These availability targets were agreed at the point where the service entered the customer's premises. However, the global network provider could only monitor and measure availability at the point the connection left its premises. The network links were provided by a number of different national telecommunications service providers, with widely varying availability levels. The result was a complete mismatch between the availability figures produced by the network provider and the customer experience, with correspondingly prolonged and heated debate and argument.

Existing monitoring capabilities should be reviewed and upgraded as necessary. Ideally this should be done ahead of, or in parallel with, the drafting of SLAs, so that monitoring can be in place to assist with the validation of proposed targets during the service transition stage.

It is essential that monitoring matches the customer's true perception of the service. Unfortunately this is often very difficult to achieve. For example, monitoring of individual components, such as the network or server, does not guarantee

that the service will be available so far as the customer is concerned. Customer perception is often that, although a failure may affect more than one service, their only concern is the service they cannot access at the time of the reported incident. Because customers and their perspectives vary, caution is needed. Without monitoring all components in the end-to-end service (which may be very difficult and costly to achieve) a true picture cannot be gained. Similarly, users must be aware that they should report incidents immediately to aid diagnostics, especially if they are performance-related, so that the service provider is aware that service targets are being breached.

A considerable number of organizations use their service desk, linked to a comprehensive CMS, to monitor the customer's perception of availability. This may involve making specific changes to incident/problem logging screens and may require stringent compliance with incident logging procedures. All of this needs discussion and agreement with the availability management process.

The service desk is also used to monitor incident response times and resolution times, but once again the logging screens may need amendment to accommodate data capture, and call-logging procedures may need tightening and must be strictly followed. If support is being provided by a third party, this monitoring may also underpin supplier management.

It is essential to ensure that any incident/problem-handling targets included in SLAs are the same as those included in service desk tools and those used for escalation and monitoring purposes. Where an organization has failed to recognize this, and perhaps used defaults provided by the tool supplier, it has ended up in a situation where it is monitoring something different from that which has been agreed in the SLAs, and is therefore unable to say whether SLA targets have been met, without considerable effort to manipulate the data. Some amendments may be needed to support tools, to include the necessary fields so that relevant data can be captured.

A notoriously difficult area to monitor is transaction response times (the time between sending a screen and receiving a response). Often end-to-end response times are technically very difficult to monitor. In such cases it may be appropriate to deal with this as follows:

- Include a statement in the SLA along the following lines: 'The services covered by the SLA are designed for high-speed response and no significant delays should be encountered. If a response time delay of more than *x* seconds is experienced for more than *y* minutes, this should be reported immediately to the service desk.'
- Agree and include in the SLA an acceptable target for the number of such incidents that can be tolerated in the reporting period.
- Create an incident category of 'poor response' (or similar) and ensure that any such incidents are logged accurately and that they are related to the appropriate service.
- Produce regular reports of occasions where SLA transaction response time targets have been breached, and instigate investigations via problem management to correct the situation.

This approach not only overcomes the technical difficulties of monitoring, but also ensures that incidents of poor response are reported at the time they occur. This is very important, as poor response is often caused by a number of transient interacting events that can only be detected if they are investigated immediately.

The preferred method, however, is to implement some form of automated client/server response time monitoring in close consultation with the service operation. Wherever possible, implement sampling or 'robot' tools and techniques to give indications of slow or poor performance. These tools provide the ability to measure or sample actual or very similar response times to those being experienced by a variety of users, and are becoming increasingly available and increasingly more cost-effective to use.

**Hints and tips**

In reality, some organizations have found that 'poor response' is sometimes a problem of user perception. The user, having become used to a particular level of response over a period of time, starts complaining as soon as this is slower. Take the view that 'if the user thinks the service is slow, then it is'.

If the SLA includes targets for assessing and implementing RFCs, the monitoring of targets relating to change management should ideally be carried out using whatever change management tool is in use (preferably part of an integrated service management support tool) and change logging screens and escalation processes should support this.

#### *4.3.5.5 Producing service reports*

Immediately after the SLA is agreed and accepted, monitoring must be instigated, and service achievement reports must be produced. Operational reports must be produced frequently (weekly or perhaps even more frequently) and, where possible, exception reports should be produced whenever an SLA has been broken (or threatened, if appropriate thresholds have been set to give an 'early warning'). Sometimes difficulties are encountered in meeting the targets of new services during the early life support period because of the high volume of RFCs. Limiting the number of RFCs processed during the early life support period can limit the impact of changes.

The SLA reporting mechanisms, intervals and report formats must be defined and agreed with the customers. The frequency and format of service review meetings must also be agreed with the customers. Regular intervals are recommended, with periodic reports synchronized with the reviewing cycle.

Periodic reports must be produced and circulated to customers (or their representatives) and appropriate IT managers a few days in advance of service level reviews, so that any queries or disagreements can be resolved ahead of the review meeting. The meeting is then not diverted by such issues.

The periodic reports should incorporate details of performance against all SLA targets, together with details of any trends or specific actions being undertaken to improve service quality. A useful technique is to include an SLA monitoring (SLAM) chart at the front of a service report to give an 'at-a-glance' overview of how achievements have measured up against targets. These are most effective if colour coded (red, amber, green, and sometimes referred to as RAG charts as a result). Other interim reports may be required by IT management for OLA or internal performance reviews and/or supplier management. This is likely to be an evolving process – a first effort is unlikely to be the final outcome.

The resources required to produce and verify reports should not be underestimated. It can be extremely time-consuming, and if reports do not reflect the customer's own perception of service quality accurately, they can make the situation worse. It is essential that accurate information from all areas and all processes (e.g. incident management, problem management, availability management, capacity management, change management, and service asset and configuration management) is analysed and collated into a concise and comprehensive report on service performance, as measured against agreed business targets.

SLM should identify the specific reporting needs and automate production of these reports, as far as possible. The extent, accuracy and ease with which automated reports can be produced should form part of the selection criteria for integrated support tools. These service reports should not only include details of current performance against targets, but should also provide historic information on past performance and trends, so that the impact of improvement actions can be measured and predicted.

#### *4.3.5.6 Conducting service reviews and instigating improvements within an overall service improvement plan*

Review meetings must be held on a regular basis with customers (or their representatives) to review the service achievement in the last period and to preview any issues for the coming period. It is normal to hold such meetings monthly or, as a minimum, quarterly.

Actions should be assigned to the customer and provider as appropriate to improve weak areas where targets are not being met. All actions must be minuted, and progress should be reviewed at the next meeting to ensure that action items are being followed up and properly implemented.

Particular attention should be focused on each breach of service level to determine exactly what caused the loss of service and what can be done to prevent any recurrence. If it is decided that the service level was, or has become, unachievable, it may be necessary to review, renegotiate, review and agree different service targets. If the service

break has been caused by a failure of a third party or internal support group, it may also be necessary to review the underpinning contract or OLA. Analysis of the cost and impact of service breaches provides valuable input and justification of SIP activities and actions. The constant need for improvement needs to be balanced and focused on those areas most likely to give the greatest business benefit. SIP activity is essentially part of the CSI stage of the lifecycle (see *ITIL Continual Service Improvement* for information on specific measurement and improvement techniques).

Reports should also be produced on the progress and success of the SIP, such as the number of SIP actions that were completed and the number of actions that delivered their expected benefit.

**Hints and tips**

'A spy in both camps' – service level managers can be viewed with a certain amount of suspicion by both the IT service provider staff and the customer representatives. This is due to the dual nature of the job, where they are acting as an unofficial customer representative when talking to IT staff, and as an IT provider representative when talking to customers. This is usually aggravated when they have to represent the 'opposition's' point of view in any meeting etc. To avoid this, the service level manager should be as open and helpful as possible (within the bounds of any commercial propriety) when dealing with both sides, although colleagues should never be openly criticized.

### *4.3.5.7 Collating, measuring and improving customer satisfaction*

There are a number of important 'soft' issues that cannot be monitored by mechanistic or procedural means, such as customers' overall feelings (these need not necessarily match the 'hard' monitoring). For example, even when there have been a number of reported service failures, customers may still have a positive feeling because they are satisfied that appropriate actions are being taken to improve things. Of course, the opposite may apply, and customers may feel dissatisfied with some issues (e.g. the manner of some staff on the service desk) when few or no SLA targets have been broken. The business relationship management process is concerned with overall customer satisfaction with all aspects of service provision. Service level management activity is focused around customer satisfaction relating specifically to the levels of service provided – essentially the warranty aspect of the service.

From the outset, it is wise to try to manage customers' expectations. This means setting proper expectations and appropriate targets in the first place, and putting a systematic process in place to manage expectations going forward, as satisfaction = perception – expectation (where a zero or positive score indicates a satisfied customer). SLAs are just documents, and in themselves do not materially alter the quality of service being provided (though they may affect behaviour and help engender an appropriate service culture, which can have an immediate beneficial effect, and make longer-term improvements possible). A degree of patience is therefore needed and should be built into expectations.

Where charges are being made for the services provided, this should modify customer demands. (Customers can have whatever they can cost-justify – provided it fits within agreed corporate strategy – and have an authorized budget for it, but no more.) Where direct charges are not made, the support of senior business managers should be enlisted to ensure that excessive or unrealistic demands are not placed on the IT provider by any individual customer group.

It is therefore recommended that attempts be made to monitor customer perception on these soft issues. Methods of doing this include:

- Periodic questionnaires and customer surveys
- Customer feedback from service review meetings
- Feedback from PIRs conducted as part of the change management process on major changes, releases, new or changed services etc.
- Telephone perception surveys (perhaps at random on the service desk, or using regular customer liaison representatives)
- Satisfaction survey handouts (left with customers following installations, service visits etc.)
- User group or forum meetings
- Analysis of complaints and compliments.

Where possible, targets should be set for these and monitored as part of the SLA (e.g. an average score

of 3.5 should be achieved by the service provider on results given, based on a scoring system of 1 to 5, where 1 is poor performance and 5 is excellent). Ensure that if users provide feedback they receive some return, and demonstrate to them that their comments have been incorporated in an action plan, perhaps a SIP. All customer satisfaction measurements should be reviewed and, where variations are identified, they should be analysed with action taken to rectify the variation.

#### *4.3.5.8 Reviewing and revising SLAs, service scope and underpinning agreements*

All SLAs and the agreements that underpin them, including OLAs, and underpinning contracts, must be kept up to date. They should be brought under the control of change management and service asset and configuration management. They should also be reviewed periodically, at least annually, to ensure that they are still current and comprehensive, and are still aligned to business needs and strategy. If the agreement in question is valid for a specified period, such as a contract with a specified termination date, sufficient lead time should be given for the review to be conducted in an orderly manner and the agreement renewed or terminated as appropriate in a timely manner. This is important to ensure no interruptions to service or periods of ambiguity in regard to service target commitments. In the case of contracts or agreements with suppliers, the supplier management process is responsible for this activity with the active consultation of SLM (see section 4.3.5.9 for more detail on OLA and underpinning contract maintenance).

Reviews should ensure that the services covered and the targets for each are still relevant – and that nothing significant has changed that invalidates the agreement in any way (this should include infrastructure changes, business changes, supplier changes etc.). Where changes are made, the agreements must be updated under change management control to reflect the new situation. If all agreements are recorded as CIs within the CMS, it is easier to assess the impact and implement the changes in a controlled manner.

These reviews should also include the overall strategy documents, to ensure that all services and service agreements are kept in line with business and IT strategies and policies. Because of the dependency of SLAs on the OLAs and underpinning contracts that support them, revised SLAs cannot be finalized without careful attention to alignment between targets.

#### *4.3.5.9 Reviewing and revising OLAs, underpinning agreements and service scope*

IT service providers are dependent on their own internal support teams as well as on external partners or suppliers. The service provider cannot commit to meeting SLA targets unless their own support teams' and suppliers' performances underpin these targets. Underpinning contracts with external suppliers are mandatory, but many organizations have also identified the benefits of having simple agreements with internal support groups, usually referred to as OLAs. 'Underpinning agreements' is a term used to refer to all OLAs, and contracts or other agreements that underpin the customer SLAs.

Often these agreements are referred to as 'back-to-back' agreements. This is to reflect the need to ensure that all targets within underpinning or 'back-to-back' agreements are aligned with, and support, targets agreed with the business in SLAs or OLAs. There may be several layers of these underpinning or 'back-to-back' agreements with aligned targets. It is essential that the targets at each layer are aligned with, and support, the targets contained within the higher levels (i.e. those closest to the business targets).

OLAs need not be very complicated, but should set out specific back-to-back targets for support groups that underpin the targets included in SLAs. For example, if the SLA includes overall time to respond and fix targets for incidents (varying on the priority levels), then the OLAs should include targets for each of the elements in the support chain. The incident resolution targets included in SLAs should not normally match the same targets included in contracts or OLAs with suppliers because the SLA targets must include an element for all stages in the support cycle (e.g. detection time, service desk logging time, escalation time, referral time between group, service desk review and closure time – as well as the actual time fixing the failure). The SLA target should cover the time taken to answer calls, escalate incidents to technical support staff, and the time taken to start to investigate and to resolve incidents assigned to them. In addition, overall support hours should be stipulated for all groups that underpin the

required service availability times in the SLA. If special procedures exist for contacted staff (e.g. out-of-hours telephone support), these must also be documented.

OLAs should be monitored against OLA and SLA targets, and reports on achievements provided as feedback to the appropriate managers of each support team. This highlights potential problem areas, which may need to be addressed internally or by a further review of the SLA or OLA. Serious consideration should be given to introducing formal OLAs for all internal support teams which contribute to the support of operational services.

It is also important that before committing to new or revised SLAs, existing contractual arrangements with suppliers are investigated and, where necessary, upgraded. This is likely to incur additional costs, which must either be absorbed by IT or passed on to the customer. In the latter case, the customer must agree to this, or the more relaxed targets in existing contracts should be agreed for inclusion in SLAs. This activity needs to be completed collaboratively with the supplier management process, to ensure not only that SLM requirements are met, but also that all other process requirements are considered, particularly supplier and contractual policies and standards.

#### *4.3.5.10 Developing contacts and relationships*

It is very important that the service provider develops trust and respect with the business, especially with the key business contacts. The SLM process contributes to this trust and respect by working closely with key business contacts throughout SLM activity to ensure that service levels are agreed and delivered. As customers experience the results of successful SLM, their trust in and respect for the service provider increase. This in turn improves the ability of the customer and service provider to work together efficiently and effectively. The business relationship management process ensures that the right customer representatives participate in SLM and contributes extensively to the understanding of business needs and priorities that must inform all SLM activity.

Using the service catalogue, especially the business/customer view of the service catalogue, enables SLM to be much more proactive. The service catalogue provides the information that enables SLM to understand the relationships between the services and the business units and business processes that depend on those services. It should also provide the information on all the key business and IT contacts relating to the services, their use and their importance. In order to ensure that this is done in a consistent manner, SLM should perform the following activities:

- Confirm stakeholders with business relationship management, including customers and key business managers and service users
- Assist with maintaining accurate information within the service portfolio and service catalogue
- Be flexible and responsive to the needs of the business, customers and users, and understand current and planned new business processes and their requirements for new or changed services, documenting and communicating these requirements to all other processes as well as facilitating and innovating change wherever there is business benefit
- Develop a full understanding of business, customer and user strategies, plans, business needs and objectives, ensuring that IT are working in partnership with the business, customers and users, developing long-term relationships. This should be done in conjunction with the business relationship management process
- Regularly take the customer journey and sample the customer experience, providing feedback on customer issues to IT (This applies to both IT customers and also the external business customers in their use of IT services.)
- Ensure that the correct relationship processes are in place to achieve objectives and that they are subjected to continual improvement
- Conduct and complete customer surveys, assist with the analysis of the completed surveys and ensure that actions are taken on the results (This can be done in collaboration with business relationship management.)
- Act as an IT representative in organizing and attending user groups
- Proactively market and exploit the service portfolio and service catalogue and the use of the services within all areas of the business
- Work with the business, customers and users to ensure that IT provides the most appropriate levels of service to meet business needs currently and in the future

- Promote service awareness and understanding
- Raise the awareness of the business benefits to be gained from the exploitation of new technology
- Facilitate the development and negotiation of appropriate, achievable and realistic warranty requirements, documented in SLRs and SLAs between the business and IT
- Ensure the business, customers and users understand their responsibilities/commitments to IT (i.e. IT dependencies)
- Assist with the maintenance of a register of all outstanding improvements and enhancements.

#### *4.3.5.11 Handling complaints and compliments*

The SLM process should also include activities and procedures for the logging and management of complaints and compliments that relate to service levels. This work represents a significant contribution to the overall customer satisfaction work being done in the business relationship management process. SLM may also be actively involved in the management of service level complaints and compliments originating from users, as well as from customers, as user perceptions will add an important perspective.

The logging procedures for compliments and complaints may be performed by the service desk as they are similar to those of incident management and request fulfilment. The definition of a complaint and a compliment should be agreed with the customers, together with agreed contact points and procedures for their management and analysis. All complaints and compliments should be recorded and communicated to the relevant parties. All complaints should also be actioned and resolved to the satisfaction of the originator. If not, there should be an escalation contact and procedure for all complaints that are not actioned and resolved within an appropriate timescale. All outstanding complaints should be reviewed and escalated to senior management where appropriate. Reports should also be produced on the numbers and types of complaints, the trends identified and actions taken to reduce the numbers received. Similar reports should also be produced for compliments.

### 4.3.6 Triggers, inputs, outputs and interfaces

SLM is a process that has many highly active connections throughout the organization and its processes. It is important that the triggers, inputs, outputs and interfaces be clearly defined to avoid duplicated effort or gaps in workflow.

#### *4.3.6.1 Triggers*

There are many triggers that instigate SLM activity. These include:

- Changes in the service portfolio, such as new or changed business requirements or new or changed services
- New or changed agreements, SLRs, SLAs, OLAs or contracts
- Service review meetings and actions
- Service breaches or threatened breaches
- Compliments and complaints
- Periodic activities such as reviewing, reporting and customer satisfaction surveys
- Changes in strategy or policy.

#### *4.3.6.2 Inputs*

A number of sources of information are relevant to the SLM process. These include:

- Business information: from the organization's business strategy, plans and financial plans, and information on its current and future requirements
- BIA: providing information on the impact, priority, risk and number of users associated with each service
- Business requirements: details of any agreed, new or changed business requirements
- The strategies, policies and constraints from service strategy
- The service portfolio and service catalogue
- Change information, including RFCs: from the change management process with a change schedule and a need to assess all changes for their impact on all services
- CMS: containing information on the relationships between the business services, the supporting services and the technology
- Customer and user feedback, complaints and compliments
- Improvement opportunities from the CSI register

- Other inputs: including advice, information and input from any of the other processes (e.g. incident management, capacity management and availability management), together with the existing SLAs, SLRs and OLAs and past service reports on the quality of service delivered.

#### *4.3.6.3 Outputs*

The outputs of SLM should include:

- Service reports: providing details of the service levels achieved in relation to the targets contained within SLAs. These reports should contain details of all aspects of the service and its delivery, including current and historical performance, breaches and weaknesses, major events, changes planned, current and predicted workloads, customer feedback, and improvement plans and activities
- Service improvement opportunities for inclusion in the CSI register and for later review and prioritization in conjunction with the CSI manager
- SIP: an overall programme or plan of prioritized improvement actions, encompassing appropriate services and processes, together with associated impacts and risks
- The service quality plan: documenting and planning the overall improvement of service quality
- Document templates: standard document templates, format and content for SLAs, SLRs and OLAs, aligned with corporate standards:
  - SLAs: a set of targets and responsibilities should be documented and agreed within an SLA for each operational service
  - SLRs: a set of targets and responsibilities should be documented and agreed within an SLR for each proposed new or changed service
  - OLAs: a set of targets and responsibilities should be documented and agreed within an OLA for each internal support team
- Reports on OLAs and underpinning contracts
- Service review meeting minutes and actions: all meetings should be scheduled on a regular basis, with planned agendas and their discussions and actions recorded and progressed
- SLA review and service scope review meeting minutes: summarizing agreed actions and revisions to SLAs and service scope
- Updated change information, including updates to RFCs
- Revised requirements for underpinning contracts: changes to SLAs or new SLRs may require existing underpinning contracts to be changed, or new contracts to be negotiated and agreed.

#### *4.3.6.4 Interfaces*

The most critical interfaces for the SLM process include:

- **Business relationship management** This process ensures that the service provider has a full understanding of the needs and priorities of the business and that customers are appropriately involved/represented in the work of service level management.
- **Service catalogue management** This process provides accurate information about services and their interfaces and dependencies to support determining the SLA framework, identifying customers/business units that need to be engaged by SLM and to assist SLM in communicating with customers regarding services provided.
- **Incident management** This process provides critical data to SLM to demonstrate performance against many SLA targets, as well as operating with the fulfilment of SLA targets as a CSF. SLM negotiates support-related targets such as target restoration times and then the fulfilment of those targets is embedded into the operation of the incident management process.
- **Supplier management** This process works collaboratively with SLM to define, negotiate, document and agree terms of service with suppliers to support the achievement of commitments made by the service provider in SLAs. Supplier management also manages the performance of suppliers and contracts against these terms of service to ensure related SLA targets are met.
- **Availability, capacity, IT service continuity and information security management** These processes contribute to SLM by helping to define service level targets that relate to their area of responsibility and to validate that the

targets are realistic. Once targets are agreed, the day-to-day operation of each process ensures achievements match targets.

- **Financial management for IT services** This process works with SLM to validate the predicted cost of delivering the service levels required by the customer to inform their decision-making process and to ensure that actual costs are compared with predicted costs as part of the overall management of the cost effectiveness of the service.
- **Design coordination** During the service design stage, this process is responsible for ensuring that the overall service design activities are completed successfully. SLM plays a critical role in this through the development of agreed SLRs and the associated service targets which the new or changed service must be designed to achieve.

### 4.3.7 Information management

SLM provides key information on all operational services, their expected targets and the service achievements and breaches for all operational services. It assists service catalogue management with the management of the service catalogue and also provides the information and trends on customer satisfaction, including complaints and compliments.

SLM is crucial in providing information on the quality of IT service provided to the customer, and information on the customer's expectation and perception of that quality of service. This information should be widely available to all areas of the service provider organization.

### 4.3.8 Critical success factors and key performance indicators

The following list includes some sample CSFs for SLM. Each organization should identify appropriate CSFs based on its objectives for the process. Each sample CSF is followed by a small number of typical KPIs that support the CSF. These KPIs should not be adopted without careful consideration. Each organization should develop KPIs that are appropriate for its level of maturity, its CSFs and its particular circumstances. Achievement against KPIs should be monitored and used to identify opportunities for improvement, which should be logged in the CSI register for evaluation and possible implementation.

- **CSF** Managing the overall quality of IT services required both in the number and level of services provided and managed
  - **KPI** Percentage reduction in SLA targets threatened
  - **KPI** Percentage increase in customer perception and satisfaction of SLA achievements, via service reviews and customer satisfaction survey responses
  - **KPI** Percentage reduction in SLA breaches caused because of third-party support contracts (underpinning contracts)
  - **KPI** Percentage reduction in SLA breaches caused because of internal OLAs
- **CSF** Deliver the service as previously agreed at affordable costs
  - **KPI** Total number and percentage increase in fully documented SLAs in place
  - **KPI** Percentage increase in SLAs agreed against operational services being run
  - **KPI** Percentage reduction in the costs associated with service provision
  - **KPI** Percentage reduction in the cost of monitoring and reporting of SLAs
  - **KPI** Percentage increase in the speed and of developing and agreeing appropriate SLAs
  - **KPI** Frequency of service review meetings
- **CSF** Manage the interface with the business and users
  - **KPI** Increased percentage of services covered by SLAs
  - **KPI** Documented and agreed SLM processes and procedures are in place
  - **KPI** Reduction in the time taken to respond to and implement SLA requests
  - **KPI** Increased percentage of SLA reviews completed on time
  - **KPI** Reduction in the percentage of outstanding SLAs for annual renegotiation
  - **KPI** Reduction in the percentage of SLAs requiring corrective changes (for example, targets not attainable; changes in usage levels)
  - **KPI** Percentage increase in the coverage of OLAs and third-party contracts in place, while possibly reducing the actual number of agreements (consolidation and centralization)

- **KPI** Documentary evidence that issues raised at service and SLA reviews are being followed up and resolved
- **KPI** Reduction in the number and severity of SLA breaches
- **KPI** Effective review and follow-up of all SLA, OLA and underpinning contract breaches.

KPIs and metrics can be used to judge the efficiency and effectiveness of SLM activities and the progress of the SIP. These metrics should be developed from the service, customer and business perspectives and should cover both subjective and objective measurements such as the following:

- Objective:
  - Number or percentage of service targets being met
  - Number and severity of service breaches
  - Number of services with up-to-date SLAs
  - Number of services with timely reports and active service reviews
- Subjective:
  - Improvements in customer satisfaction.

More information on KPIs, measurements and improvements can be found in the following section and in *ITIL Continual Service Improvement*.

**Hints and tips**

Don't fall into the trap of using percentages as the only metric. It is easy to get caught out when there is a small system with limited measurement points (i.e. a single failure in a population of 100 is only 1%; a single failure in a population of 50 is 2% – if the target is 98.5%, then the SLA is already breached). Always go for number of incidents rather than a percentage on populations of less than 100, and be careful when targets are accepted. This is another thing organizations have learned the hard way.

SLM often generates a good starting point for a SIP – and the service review process may drive this, but all processes and all areas of the service provider organization should be involved in the SIP.

Where an underlying difficulty that is adversely impacting on service quality has been identified, SLM must, in conjunction with problem management and availability management, instigate a SIP to identify and implement whatever actions are necessary to overcome the difficulties and restore service quality. SIP initiatives may also focus on such issues as user training, service and system testing, and documentation. In these cases, the relevant people need to be involved and adequate feedback given to make improvements for the future. At any time, a number of separate initiatives that form part of the SIP may be running in parallel to address difficulties with a number of services.

Some organizations have established an up-front annual budget held by SLM from which SIP initiatives can be funded. This means that action can be undertaken quickly and that SLM is demonstrably effective. This practice should be encouraged and expanded to enable SLM to become increasingly proactive and predictive. The SIP needs to be owned and managed, with all improvement actions being assessed for risk and impact on services, customers and the business, and then prioritized, scheduled and implemented. Improvements identified by SLM are part of the overall continual service improvement approach and should be logged in the CSI register for review and prioritization. Once selected for action they are managed as part of a SIP.

If an organization is outsourcing its service delivery to a third party, the issue of service improvement should be discussed at the outset and covered (and budgeted for) in the contract, otherwise there is no incentive during the lifetime of the contract for supplier to improve service targets if they are already meeting contractual obligations and additional expenditure is needed to make the improvements.

## 4.3.9 Challenges and risks

### *4.3.9.1 Challenges*

One challenge faced by SLM is that of identifying suitable customer representatives with whom to negotiate. Who 'owns' the service on the customer side? In some cases, this may be obvious, and a single customer manager is willing to act as the signatory to the agreement. In other cases, it may take quite a bit of negotiating or cajoling to find a representative 'volunteer' (beware that volunteers often want to express their own personal view rather than represent a general consensus), or it may be necessary to get all customers to sign.

If customer representatives exist who are able genuinely to represent the views of the customer

community, because they frequently meet with a wide selection of customers, this is ideal. Unfortunately, all too often representatives are head-office based and seldom come into contact with genuine service customers. In the worst case, the service level manager may have to perform their own programme of discussions and meetings with customers to ensure true requirements are identified.

**Anecdote: Conflict management and SLM**

On negotiating the current and support hours for a large service, an organization found a discrepancy in the required time of usage between the head office and the field office's customers. The head office (with a limited user population) wanted service hours covering 8.00 to 18.00, whereas the field office (with at least 20 times the user population) stated that starting an hour earlier would be better – but all offices closed to the public by 16.00 at the latest, and so would not require a service much beyond this. The head office won the 'political' argument, and so the 8.00 to 18.00 band was set. When the service came to be used (and hence monitored) it was found that service extensions were usually asked for by the field office to cover the extra hour in the morning, and actual usage figures showed that the service had not been accessed after 17.00, except on very rare occasions. The service level manager was blamed by the IT staff for having to cover a late shift, and by the customer representative for charging for a service that was not used (i.e. staff and running costs).

**Hints and tips**

Care should be taken when opening discussions on service levels for the first time, as it is likely that 'current issues' (the failure that occurred yesterday) or long-standing grievances (that old printer that we have been trying to get replaced for ages) are likely to be aired at the outset. Important though these may be, they must not be allowed to get in the way of establishing the longer-term requirements. Be aware, however, that it may be necessary to address any issues raised at the outset before gaining any credibility to progress further.

Another challenge may arise if there has been no previous experience of SLM. In these cases, it is advisable to start with a draft SLA. A decision should be made on which service or customers are to be used for the draft. It is helpful if the selected customer is enthusiastic and wishes to participate – perhaps because they are anxious to see improvements in service quality. The results of an initial customer perception survey may give pointers to a suitable initial draft SLA.

**Hints and tips**

Do not pick an area where large problems exist as the first SLA. Try to pick an area that is likely to show some quick benefits and develop the SLM process. Nothing encourages acceptance of a new idea quicker than success.

One difficulty sometimes encountered is that staff at different levels within the customer community may have different objectives and perceptions. For example, a senior manager may rarely use a service and may be more interested in issues such as value for money and output, whereas a junior member of staff may use the service throughout the day, and may be more interested in issues such as responsiveness, usability and reliability. It is important that all of the appropriate and relevant business requirements, at all levels, are identified and incorporated in SLAs.

Some organizations use focus groups from different levels from within the customer community to help ensure that all issues have been correctly addressed. This takes additional resources, but can be well worth the effort.

The other group of people that has to be consulted during the whole of this process is the appropriate representatives from within the IT provider side (whether internal or from an external supplier or partner). They need to agree that targets are realistic, achievable and affordable. If they are not, further negotiations are needed until a compromise acceptable to all parties is agreed. The views of suppliers should also be sought, and any contractual implications should be taken into account during the negotiation stages.

Where no past monitored data is available, it is advisable to leave the agreement in draft format for an initial period, until monitoring can confirm that initial targets are achievable. Targets may have to be re-negotiated in some cases. Many organizations negotiate an agreed timeframe for IT to negotiate and create a baseline for

establishing realistic service targets. When targets and timeframes have been confirmed, the SLAs must be signed.

Once the initial SLA has been completed, and any early difficulties overcome, then move on and gradually introduce SLAs for other services/customers. If it is decided from the outset to go for a multi-level structure, it is likely that the corporate-level issues have to be covered for all customers at the time of the initial SLA. It is also worth trialling the corporate issues during this initial phase.

**Hints and tips**

Don't go for easy targets at the corporate level. They may be easy to achieve, but have no value in improving service quality or credibility. Also, if the targets are set at a sufficiently high level, the corporate SLA can be used as the standard that all new services should reach.

#### *4.3.9.2 Risks*

Some of the risks associated with service level management are:

- A lack of accurate input, involvement and commitment from the business and customers
- Lack of appropriate tools and resources required to agree, document, monitor, report and review agreements and service levels
- The process becomes a bureaucratic, administrative process, rather than an active and proactive process delivering measurable benefit to the business
- Access to and support of appropriate and up-to-date CMS and SKMS
- Bypassing the use of the SLM processes
- Business and customer measurements are too difficult to measure and improve, so are not recorded
- Inappropriate business and customer contacts and relationships are developed
- High customer expectations and low perception
- Poor and inappropriate communication is achieved with the business and customers.

## 4.4 AVAILABILITY MANAGEMENT

Availability is one of the most critical parts of the warranty of a service. If a service does not deliver the levels of availability required, then the business will not experience the value that has been promised. Without availability the utility of the service cannot be accessed. Availability management process activity extends across the service lifecycle.

### 4.4.1 Purpose and objectives

The purpose of the availability management process is to ensure that the level of availability delivered in all IT services meets the agreed availability needs and/or service level targets in a cost-effective and timely manner. Availability management is concerned with meeting both the current and future availability needs of the business.

Availability management defines, analyses, plans, measures and improves all aspects of the availability of IT services, ensuring that all IT infrastructure, processes, tools, roles etc. are appropriate for the agreed availability service level targets. It provides a point of focus and management for all availability-related issues, relating to both services and resources, ensuring that availability targets in all areas are measured and achieved.

The objectives of availability management are to:

- Produce and maintain an appropriate and up-to-date availability plan that reflects the current and future needs of the business
- Provide advice and guidance to all other areas of the business and IT on all availability-related issues
- Ensure that service availability achievements meet all their agreed targets by managing services and resources-related availability performance
- Assist with the diagnosis and resolution of availability-related incidents and problems
- Assess the impact of all changes on the availability plan and the availability of all services and resources
- Ensure that proactive measures to improve the availability of services are implemented wherever it is cost-justifiable to do so.

Availability management should ensure the agreed level of availability is provided. The measurement and monitoring of IT availability is a key activity to ensure availability levels are being met consistently.