

Best Practice Insights

Focus On: ITIL® Service Design
For ITIL 2011

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Note to Readers

This publication highlights the key elements of the ITIL *Service Design* publication and includes commentary on important concepts from BMC and ITIL experts.

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FOREWORD

Designing a house requires paying attention to every possible variable: the electrical system, square footage, number of rooms, windows, and the budget, for example. The family's needs will dictate the type and level of services needed, such as heating, cooling, and lighting. As the family grows, the design should accommodate future expansion, including automating and integrating the systems in the home. Life is far more pleasant when an intelligent thermostat ensures a warm house is ready and waiting for its tenants.

ITIL[®] Service Design takes a similar approach to designing another type of “home”—one that delivers and supports the company's business services. Established design processes ensure that the IT infrastructure provides services that are integrated with current business needs and can support them as the business grows. ITIL helps IT professionals manage and deliver reliable services, which translates to agility, increased revenue, improved productivity, lower costs, and greater customer satisfaction.

The Service Design publication takes a holistic approach to designing services and processes into your plans. It reviews many central concepts in service design, including service management, service catalog management, and technology-related activities and considerations. It also covers setting up the organization to support service design, while addressing the challenges and risks involved.

CHAPTER 1: INTRODUCTION

This chapter focuses on designing services by taking a big-picture view of how those services will support your business strategy. It includes the following principal concepts:

- Applying the service strategy developed in the ITIL V3 lifecycle
- Gathering service requirements from the business
- Understanding the capabilities and resources required to deliver and support the service
- Determining which IT resources will provide the integrated services

The chapter also addresses creating and coordinating design specifications for assets that deliver the services. IT services should be designed with the people, practices, processes, and policies that support them. This helps ensure success when you introduce services into the live environment through service transition, which is the next stage in the ITIL V3 lifecycle.

If services or processes are not part of the service design strategy, they may evolve without proper controls. This can create a reactive approach, resulting in additional expense, chaos, and poor integration with the business.

The Service Design publication provides a broad and detailed overview of the five aspects of service design, including:

- Service solutions for new or changed services
- Management information systems and tools
- Technology architectures and management architectures
- Processes
- Measurement methods and metrics

STANDARDIZE, STANDARDIZE, STANDARDIZE

Chapter 1 of the Service Design publication describes the value of ITIL and other frameworks, which represent standardized best practices versus internal, proprietary knowledge that is difficult to share, transfer, or adopt. The ITIL Core, for example, consists of five publications that provide guidance for an integrated approach required by ISO/IEC 20000, the standard for service management. The five publications include Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement.

SUMMARY

Focus on integrating your activities with the business goals defined in your strategy, and not just with your IT goals. Including the right people, processes, products, and partners will help make this integration possible. For example, when you build your house, just as when you design services, you may have the best materials that money can buy. Yet, if you don't have competent, carpenters and contractors working together, the results will disappoint you. If the house isn't well designed and procedures aren't followed in the correct order, you won't get the desired outcome. There's no point in hiring the electrician to install a chandelier until there's a ceiling where it can hang.

For definitions of frequently used terms in the Service Design publication, visit <https://www.axelos.com/glossaries-of-terms>.

CHAPTER 2: SERVICE MANAGEMENT AS A PRACTICE

ITIL V3 takes service management to the next level by discussing how IT must align itself with business objectives. Further, to provide the services the business needs, IT must integrate itself with the business.

Chapter 2 introduces definitions that provide a basis for the ITIL framework and presents concepts that are essential to service management success, including:

- Value creation
- The importance of organizing for service management
- The service lifecycle

The overriding message is to think about how you architect the services you provide. How do you create service value? How do you realize this for your customers?

Stakeholders

Everyone in the organization should be considered a stakeholder for service management. Service is everyone's responsibility, no matter what role they play or how they play the role to deliver and support services for their customers.

External stakeholders, customers, users, and suppliers should also be considered. These stakeholders and the organizational stakeholders are examples of the following agency principle:

Customers, both internal and external, need to be confident that you can effectively and consistently support their business strategies.

Utility of Service

Customers want to achieve business outcomes by using services that are fit for their purpose. The utility of a service must support the customers' performance or remove a constraint. Customers can become very frustrated with a service that is fit for their purpose but lacks sufficient warranty for their use.

Warranty of Service

This chapter provides guidance on warranty of service, which you can communicate to customers in terms of commitments to the availability, capacity, continuity, and security of the utilization of services. These are the main process areas in service design.

- Availability means that the customer can use your service under the terms and conditions upon which you have mutually agreed.
- Capacity ensures that the customer will be able to utilize the service at a specified level of business activity or that demand will be fulfilled at a specified quality level.

- Continuity guarantees that the customer will be able to use the service even if you experience a major failure or other unexpected event.
- Security means that the customer's utilization of services will be free of specific risks.

Many of the services IT provides are considered commodities. You create a competitive advantage when you are able to deliver a certain level of warranty to your customers.

Customers, both internal and external, need to be confident that you can effectively and consistently support their business strategies. Since service providers are constantly matching others' service offerings, you must constantly improve your value proposition to stand apart. Use one or more of the service management processes to drive these improvements.

Service Assets

According to ITIL, resources and capabilities are types of assets you can use to create value for your customers. Resources are direct inputs to produce a service. Capabilities are the organization's abilities to use resources to create value. You can create differentiation and keep customers by developing capabilities that are difficult for your competitors to replicate.

Processes

Processes have inputs or triggers, defined actions and activities, and an output or specific results. Processes also have metrics and deliver primary results to a customer in the form of services. Capabilities and resources within or external to the organization enable processes. Processes should follow enterprise governance standards, and policy compliance should be built into them. Governance ensures that you execute the required processes. Processes should be efficient, effective, and economical for the services that the process supports.

Service Lifecycle

The service lifecycle is dynamic, as each stage of the lifecycle supports other stages. Specialization and coordination across the lifecycle are very important to deliver and support services. The service lifecycle should work as an integrated system that includes feedback mechanisms for continual improvement.

Look at the Big Picture

Every IT department has a limited set of resources. Service design makes you focus on the activities most important to the business and prioritize work according to business requirements. Service management emphasizes the need to take a holistic approach to design. Just as you wouldn't design a kitchen for a house without thinking about how it fits in with the dining room and other rooms nearby, you wouldn't design a new application in isolation. Instead, it's important to consider the impact on the overall service, the service portfolio and catalog, technology, processes, and metrics.

Processes must:

- Be measurable. If you can't measure something, how do you know you've succeeded?
- Provide specific results. You should be able to identify and count the results.
- Meet customer expectations. These should be supported by service level agreements (SLAs).
- Respond to a specific event. The process should be traceable to a specific trigger.

Business Value

Measuring and demonstrating value are related to linking design with business outcomes. You can express value in a many ways, including:

- Achieving service levels from a business outcome perspective
- Delivering business metrics supported by IT quality measurements (in terms that IT and the business can understand)
- Measuring IT quality in business/user terms, such as customer achievement of outcomes and customer satisfaction

Successful IT organizations ensure that design requirements are business and customer oriented, and meet business demands for continuous operation. They must be cost effective, secure, flexible, and managed with an acceptable level of risk. Also, you must design these requirements with agility in mind. Your systems must be able to keep up with an increased demand in volume and with the speed of change.

By focusing first on business priorities, you can target areas that will yield the greatest return.

Be sure to make the projects and services that have the greatest impact to the business your top IT priorities. Some organizations may get sidetracked by giving priority to the group that is most vocal.

SUMMARY

Pay close attention to the sections on service management as a practice and service design principles to ensure your business design strategy provides direction and identifies constraints. These fundamentals help you determine how to prioritize work in service design: decide what to do with the information, identify the services you need to provide, and determine how to provide them. They will also help you understand where the SLA objectives fit in.

If the services are useful and valuable, the business will continue to view IT as beneficial. But, if the services are not seen as valuable to the business, the IT organization may be in danger of becoming optional. You must ask yourself: “Are we focused on our customers’ outcomes? Will our projects and activities positively influence the organization’s financial aspects? Will they help the company increase performance and growth and stay ahead?” If the answer to these questions is “yes,” these activities will enhance the business value of IT.

The IT organization should focus on designing and building infrastructure to meet governance codes and business requirements. Getting back to the home design analogy, think about how houses are designed to a certain “code.” In California, which is prone to earthquakes, people must follow strict earthquake-resistant design. In Northern Europe, there are strict energy efficiency codes. These can be viewed the same way as governance codes for the services IT provides. The architect and builder must adhere to these requirements, just like IT organizations must adhere to codes and standards.

CHAPTER 3: SERVICE DESIGN PRINCIPLES

This chapter provides guidance on basic service design principles. It emphasizes the need to approach design in a holistic manner by looking at the entire service lifecycle and processes from the beginning. Some of the goals of service design include:

Satisfying business objectives	Designing services that can be easily developed and readily enhanced within time and budget constraints
Designing efficient processes	Identifying and managing risk
Designing measurement methods and metrics	Developing and maintaining plans and skills

A Balancing Act

To help meet the changing needs of the business, focus efforts on balancing the functionality required with the resources available and the schedule you must meet to bring the service online, given both constraints and demands.

In the housing example, there is always a balance between budget and the size of the house, as well as a balance between quality and price. How fast you can build a house depends on whom you hire as a general contractor and the number of contracts. How well you communicate your needs to the contractor, the order in which tasks are completed, and the flexibility of the plans will also have an impact. Similarly, to complete IT projects and balance the needs of the business customer, you need to make sure:

- A competent project manager provides direction and oversight
- IT and the business communicate effectively
- The designers have access to all the latest versions of IT plans and strategies
- The architectural documents are consistent
- The architecture and designs are flexible enough to address your requirements
- Everyone involved understands their roles and responsibilities

You must take a holistic approach that considers the service and its components and how to deliver the functionality needed. Remember that you should not design services in isolation. Otherwise, they may not integrate well with other applications. When designing services, be sure to address specific technology areas technology, such as components related to the infrastructure, environment (e.g., physical space, and power), data management and control, and application management and control.

Documentation and Design

Document information about the requirements of existing services, not just new services. This includes, but is not limited to, changes to existing services and how they will impact facilities, processes, dependencies, transaction volume, service levels, and so on. You should also be able to identify how new services will impact transactions and future growth, for example. In addition, there must be a formal process for agreeing to and accepting these changes.

Business drivers and needs will change during design and delivery stages. Consider functionality and resources for all stages of the service lifecycle. Follow a holistic approach. Manage all mechanisms and functionality in the new service. Improve through the life of the service to meet the agreed-upon service levels.

You must assemble accurate information on the business requirements that necessitate changes to existing services. You can then determine if you need to create a new service or enhance, change, or remove an existing one. This information impacts changes to facilities, processes, service transactions, and SLA targets.

Be sure to retain information about these requirements for new services, along with process dependencies, business cycles, transaction levels, and future growth. Identify and document the business justification, predicted level of change, and level of support needed.

Collecting this information is important for designing and delivering new services or changing existing ones. In the home design analogy, you wouldn't pour the foundation without considering the ground on which the house will rest.

Be aware of the audit trail necessary for compliance and governance requirements. When you collect data, you must get the appropriate signatures for approval. You must also have a formal process for agreeing to and accepting changes to evolving requirements.

Designing Technology and Management Architectures

ITIL recommends that IT planners, designers, and (service) architects understand the business requirements, the underpinning services, future direction, and current technology. This helps ensure they can develop appropriate IT architecture for use now and in the future. This architecture should help support the end-to-end management of the technology used.

Ideally, you should align roles and processes with business objectives.

The Service Design publication cautions against over-designing. When designs and architectures are too complex, they are more challenging to put in place and support. Take a realistic look at how the existing architecture can support a given service. Sometimes it's best to design the minimum and evolve or enhance over time. Build the basic home today, but prepare the design to expand as necessary (e.g., more bedrooms, bathrooms, and so forth).

When one approach works, use that method to extend the resources to other services. You will likely get bogged down if you design processes for complete infrastructure and services at once. A service-focused approach is a better option.

Designing Processes, Measurement Systems, and Metrics

ITIL describes processes as structured activities for accomplishing specific objectives. Process control focuses on performing processes effectively, efficiently, and consistently. It's important to document and control processes. This makes them more consistent and manageable. Processes should be driven by objectives and include metrics reports and process improvement. They should have process owners who are responsible for both the process and its improvement. The aim isn't always to design "perfect" processes. What's more important is to make sure they are practical and have built-in improvement mechanisms.

Processes must be monitored and measured, typically with four types of metrics: progress, compliance, effectiveness, and efficiency.

Metrics can be aggregated into a metrics tree or key performance indicator (KPI) tree. You can create automated measurement systems based on this approach. KPIs measure the business health of the enterprise and ensure all stakeholders are following a strategy and common goals. KPIs should:

- Provide quantifiable metrics
- Align with corporate strategic value drivers

- Perform predictably
- Cascade throughout an organization

The success of any performance management program is contingent on selecting correct, relevant KPIs.

While metrics show a number that reflects performance, KPIs put performance in context by setting thresholds, targets, and benchmarks. For each process, specify an optimum number of KPIs that are easy to comprehend and as actionable as possible. An owner (individual or group) must be associated with the KPI. Additionally, gain executive support to help overcome political obstacles.

Be careful what you measure! The metrics will influence behavior—and not always in a positive manner. For example, measuring average call time may tempt service desk agents to disconnect an unsolved call.

Data interpretation is also an art in itself. The introduction of service management processes may lead to an increase in the number of reported incidents. The reason for this could be that users never contacted the service desk before because they believed their issues would not be addressed.

SUMMARY

IT is an essential part of the business and, as such, must integrate and align with the business. Stay focused on what you need to integrate IT objectives with business objectives. Most important, consider these objectives as a whole and not in isolation.

CHAPTER 4: SERVICE DESIGN PROCESSES

In service design, you must tie business needs to activities that can adapt to changing requirements. Define and document your processes, and, to avoid confusion, clearly define roles and responsibilities too. The service design processes within ITIL V3 are summarized as follows:

- Design coordination ensures coordinated actions to support business outcomes.
- Service catalog management ensures that the catalog contains accurate information on all services that are live or scheduled to be taken into production.
- Service level management offers the ability to research and understand the requirements. Negotiate, agree on, and document IT service targets with the business. Track and report on service delivery performance.
- Capacity management ensures the existence of cost-justifiable IT capacity.
- Availability management provides the ability to meet or exceed current and future business needs for the availability of all services in a cost-effective manner.
- IT service continuity management helps ensure that IT services are resumed within agreed-on business timescales.
- Information security management facilitates the alignment of IT security with business security.
- Supplier management provides guidance on how to manage suppliers to deliver seamless IT service quality to the business at the right price.

Design Coordination

Design coordination ensures collaboration during the design stage of the lifecycle. All design activities and processes across the service project or service change are managed by a single point of control. Key deliverables from this process are consistent and quality solutions, designs, and service design package(s) (SDPs) that will deliver and support business outcomes.

The primary focus of service catalog management is to have a single source of accurate information, accessible by the roles requiring this type of information.

The central principles in design coordination are balance, prioritization, and integration with project management. Balance and prioritization address the utility and warranty of a service, as well as the needs of the service throughout its lifecycle. Integration with project management is especially important. Project management specialization combined with service design specialization helps to ensure success. Project management should also be aware of the dynamics of associating one project with another. For example, a configuration management database (CMDB) project on its own will provide some value. But associating it with an incident management project will provide more value than the two projects alone.

Service Catalog Management

Service catalog management is an important concept. The catalog should list the operational services you have, why they are there, who owns them, which customers have signed up for them, and the desired business value of these services. It's a great idea to have a service catalog, but it won't do anyone much good unless it's managed and kept accurate.

A service catalog enables all areas of the business to have a common, consistent, and accurate view of IT services and the business services they support.

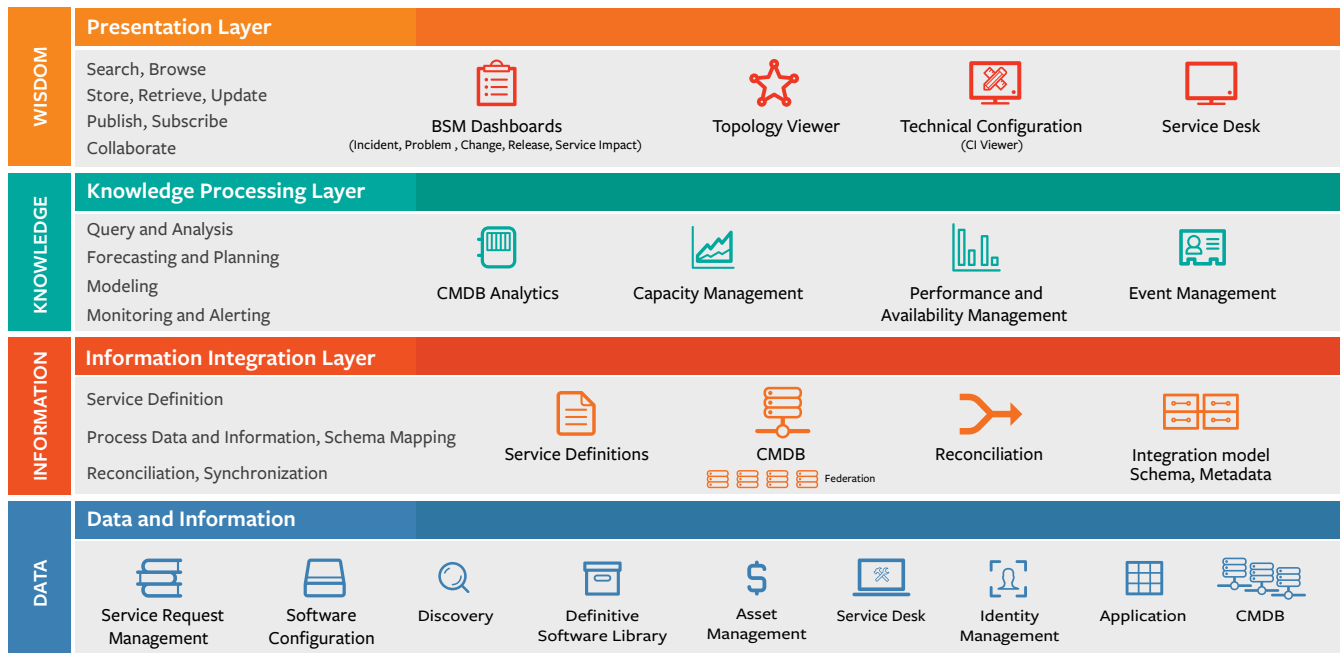


Figure 1. Sample Service Knowledge Management System (SKMS)

The service catalog supports two distinct types of services: customer-facing services and supporting services. Customer-facing services are IT services that support business outcomes from the customer perspective. Supporting services are IT services that underpin the customer-facing services. These include database services, network services, relationships, and processes or technical services. The service catalog can have many views depending on the decisions the consumer of the information needs to make. Example views are a business/customer service catalog view and a technical/supporting service catalog view.

The steps for the service catalog management process include:

- Make sure all relevant parties agree on and document the service definition; collaboration is key!
- Interface with service portfolio management. Get consensus on what's in the service portfolio and service catalog.
- Create and maintain the service catalog in conjunction with the service portfolio.
- Work with the business and the IT service continuity management team to ensure that their requirements are supported by IT services contained in the business service catalog.
- Work with support teams, suppliers, and configuration management to define interfaces and dependencies that exist between IT services, components, supporting services, and configuration items (CIs) in the supporting services.

How can you make the service catalog management process successful? Ensure that the catalog contains reliable information and that the business is aware of the services provided. IT must also understand the technology used to support services. Service transition problems can occur when the data in the catalog is inaccurate or not under rigorous change control. If information is too detailed it will be difficult to maintain. Conversely, if the information is too high level it will not relay enough detail.

Service Level Management

The service level management (SLM) process focuses on first researching and understanding requirements, and then defining, negotiating, agreeing on, and documenting IT service targets with key people from the business. This includes monitoring, measuring, and reporting on how well the service provider delivered the agreed-on service levels. When targets are appropriate and met, the business and IT have a better chance of aligning.

SLM should manage expectations and perceptions. This requires establishing and maintaining service level agreements (SLAs) with developing and managing operational level agreements (OLAs).

What is required for designing SLA frameworks to ensure that IT can meet customer requirements? That depends on the type of SLA:

- A service-based SLA covers one service for all customers.
- A customer-based SLA covers all services used by an individual group. Agreements may include the payroll system, billing system and help desk.
- Multi-level SLAs involve different agreements based on the group. For example, a three-level structure could focus on the corporate level, which covers generic SLM issues; the customer level, which includes all issues for a particular customer group, regardless of the service used; and the service level, which covers all SLM issues relevant to the specific service for a specific customer group.

Additionally, don't underestimate the importance of measuring and improving customer satisfaction. For example, automated customer surveys can provide valuable insight into service performance.

Make sure to keep all agreements, underpinning contracts, and OLAs up to date. That means that they should be under change management control and reviewed to ensure they are correct and align to the needs of the business. If the agreements are recorded as CIs within the CMS, it is easier to understand the impact of the changes and to implement them effectively.

This chapter reviews many of the activities related to SLM processes. It discusses the need to develop contracts and build a relationship with the business.

Capacity Management

The purpose of capacity management is to ensure that IT can provide cost-justifiable capacity to meet the current and future needs of the business. These needs may change often. For example, discounts or promotions on the web store may increase traffic to the site.

Effective capacity management requires understanding both the IT and business environments and the potential need for new services. With the right processes, you will be able to determine which components to upgrade and when, how much the upgrade will cost, and whether you can justify it.

You can use capacity management to forecast the impact of events, such as a spike in the number of end users. With the right strategy in place, you will be able to plan for the costs and resources required, and balance supply against demand.

Capacity management receives input from many sources, including:

Information about the business, service, and IT	Component performance and capacity
Financial details	Service performance issues
Relationship information from the CMDB	And other areas

In return, capacity management:

Captures information in the capacity management information system (CMIS)	Creates the capacity plan
Relationship information from the CMDB	

Capacity management for a web store means making sure there's enough capacity for normal traffic. It also requires preparing for variations based on the time of day, season, product changes, and sale or promotion periods. This preparation requires integration with the business to ensure IT is ready for any and all business initiatives that will impact capacity.

Do you recall hearing about an organization that had a 20 percent-off sale day, on the company's website, seven days before Christmas? The company advertised the sale widely, but failed to notify IT. On sale day, the web store "fell over" due to lack of capacity. This damaged the company's reputation and resulted in significant revenue loss. What's more, the company's share price fell 10 percent that same day.

Capacity Plan

ITIL recommends publishing an annual capacity plan that incorporates business capacity management, service capacity management, and component capacity management.

- Business capacity management ensures that we understand future business requirements for services, and plan for and implement extra capacity.
- Service capacity management focuses on managing, controlling, and predicting the end-to-end performance and capacity of IT services.
- Component capacity management covers managing, controlling, and predicting the performance, use, and capacity of individual components.

Whenever possible, it's important to establish automated thresholds to manage components. This automation allows you to act to reduce the impact of situations that can occur when targets are breached or threatened. By continually monitoring and measuring the capacity of each system and component, you will be immediately alerted when something happens to compromise capacity.

Activities can be proactive, such as taking necessary actions before they impact the business. For example, you can conduct modeling to help measure impact, budget for upgrades, and improve service performance. Activities can also be reactive. These may include monitoring, reporting, and reviewing performance; responding to threshold events; initiating corrective action; and responding to performance issues.

You should include capacity management early in the process for strategic, design, and planning activities. This will help you develop a service strategy, and review and improve IT strategies, policies, and technology architectures. Capacity management should also play an active role in the support, negotiation, and verification of SLAs. For example, if you're negotiating a service for 2,000 remote users, you need to verify with capacity management what level of service can you can deliver and whether the users all plan to connect at the same time, 50 percent of the time, etc. You can then use this information to negotiate the SLA based on the business value you are to deliver.

Effective capacity management requires knowing the priority of business services. This helps determine whether a failure is business critical, such as when people can't place orders, or whether a failure means that some employees can't access the printers nearest to them.

You may need to implement some upgrades to ensure future capacity. You may consider these long-term activities due to the cost being high or the consequences of not upgrading not being significant. With the right demand management processes in place, you should be able to understand which services are using which resources. If the IT organization charges for services, consider offering financial incentives. These could be lower fees for work done at times when there is less demand, for example.

The appropriate level of availability should be incorporated into the service design strategy from the beginning. This ensures that availability targets are measured and achieved.

One of the objectives of capacity management is to predict the behavior of IT services. This involves asking "What if?" questions. Capacity management and modeling techniques can help answer questions like: "What will happen if we move a service from one server to the next?"

How will you know if your capacity management process is successful? You should be able to get accurate forecasts that will help adjust your capacity plan to meet desired business objectives. Capacity management can improve costs by reducing over-capacity and disruptions that impact customers.

Availability Management

Availability management helps to ensure that the level of availability for services meets or exceeds existing and future business needs. To make this happen, you must understand business processes, future plans and requirements, service targets, IT infrastructure data, and business impact.

While availability can generate reactive processes, the key is to make objectives more proactive. You can predict, preempt, and prevent downtime through effectively automating and integrating processes and technology. Availability is often measured as a percentage, as described in the Service Design publication.

ITIL refers to vital business function (VBF) as business-critical elements of business processes that IT services support. The Service Design publication uses the example of an ATM, where getting cash may be vital, but having a printed receipt may not be as critical. Designs for VBFs should incorporate:

- High availability
- Fault tolerance
- Continuous operation
- Continuous availability, with a goal of 100 percent

Availability management processes include:

Determining availability requirements from the business for new or enhanced services

Identifying VBFs

Determining the impact of a component failure

Designing processes to minimize this failure

VBF design encompasses setting targets for the availability, reliability, and maintainability of components to ensure that IT can measure and meet SLAs, OLAs, and contracts.

Traditional measurements of availability include reviewing:

- The percentage of time available
- The percentage of time unavailable
- The duration of downtime in minutes

Measurements also look at the frequency and impact of failure.

Availability management processes must consider availability from both a business and IT perspective. Users care about the frequency of downtime, the duration, and the scope of the impact. To measure this, be sure to look at the user minutes lost and the impact by transaction.

Focus measurements on how the availability of vital business functions impacts the business. Availability should be agreed to by the business and should identify the following:

The minimum available level of functionality for the service

The level at which service response is considered unavailable

Where to measure functionality and response

How much weight should be given to partial service availability

What happens to the availability of the whole service if one location is impacted

You can determine the cost to the business by combining tangible costs, such as lost productivity, lost revenue, and wasted goods, with intangible ones, such as damage to reputation, loss of business opportunity and profit erosion.

Service failure analysis (SFA) provides a structured approach to determine the cause of service interruptions and includes the following phases:

- Select the opportunity
- Scope the assignment
- Plan the assignment
- Build a hypothesis
- Analyze the data
- Interview key personnel

- Assemble the findings and conclusions
- Incorporate the recommendations
- Produce a report
- Provide validation

Be Proactive

Component failure impact analysis (CFIA) is a technique that helps identify the impact of CI failure on IT services. A matrix is created with IT services on one edge and CIs on the other. This allows you to identify critical CIs that could cause multiple IT services to fail and fragile IT services that have multiple single points of failure. You can use this approach to identify measures that prevent or minimize how a component failure impacts the business. For example, the CFIA can show component recovery timings and component- and people-related dependencies.

Other types of analysis include locating a single point of failure and its impact, along with a fault tree analysis (FTA) to determine how a chain of events can disrupt services. By conducting an FTA, you can distinguish the following types of events:

- Basic events (e.g., power failure or operator error)
- Resulting events that occur from a combination of events, conditional events, and triggers. A conditional event occurs only when certain conditions happen, such as when the air conditioning goes down. Trigger events can happen when detection equipment identifies an automatic shutdown of services.

It's essential to manage maintenance effectively to ensure availability. After you've defined the maintenance requirements, you should document them in SLAs, OLAs, contracts, change management schedules, and release and deployment management schedules. Most businesses want their services 100 percent available during business hours. Yet at night or on weekends, the requirements might be less critical, and scheduled changes can occur with minimal risk.

IT Service Continuity Management

IT service continuity management (ITSCM) focuses on supporting overall business continuity management by helping you define the process responsible for managing risks that could seriously impact IT services. ITSCM ensures that the IT service provider can always provide minimum agreed-on service levels. This happens by reducing the risk to an acceptable level and planning for the recovery of IT services. You should design ITSCM to support business continuity management.

There are four stages in the ITSCM lifecycle process:

1. Initiation
2. Requirements and strategy
3. Implementation
4. Ongoing operation

The initiation stage begins with setting policy. This is where members of the organization affected by or involved with business continuity issues learn about their responsibilities related to ITSCM.

The next step entails specifying the terms of reference and the scope of responsibilities. This involves performing a risk analysis and business impact analysis, and determining the control structure for supporting services during interruptions in business.

It is important to allocate resources for training or consulting. This will help to familiarize staff with what’s needed to accomplish tasks during this stage. The process continues with designing the project organization and control structure. It will also be necessary to get buy-in from interested parties on project requirements and quality plans.

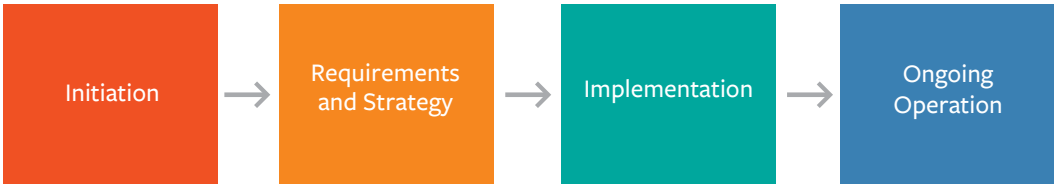


Figure 2. Four Stages of the ITSCM Lifecycle Process

The requirements and strategy stage involves performing a business impact analysis (BIA) to identify potential damage or loss. This could be lost income, extra costs, damaged reputation or loss of competitive advantage, for example. Once you’ve completed the BIA, it is possible to identify the business impact caused by the unavailability of a service over time. This type of assessment facilitates the mapping of critical service, application, and technology components to business processes.

Mapping business processes to business services allows you to further link the business processes to the underlying infrastructure. You do this by tying business process data to the service catalogs in the CMS. This information can bridge the communications gap that often divides IT and business owners.

The implementation stage includes developing plans to decide which critical resources you should reinstate within an acceptable time frame. The plan should document all details about the recovery of IT services following a disaster. You will need a checklist that contains specific actions required during recovery stages.

These actions include:	
Restoring a system to an operational state	Conducting connectivity checks
Performing checks for functionality, data consistency, and integrity	

Disasters Happen — How to Minimize Their Impact

Risk analysis can help you prepare for almost any type of disaster that may cause a loss of critical systems, data, and services.

Risks can include threats from fire, power failures, natural disasters, malicious damage, etc.

You should consider a variety of factors to help mitigate risk, including having off-site storage, developing ITSCM recovery options, or performing manual workarounds.

Ongoing operation covers education and training to ensure that IT staff are aware of business continuity activities. Regular testing is necessary to verify that critical components are functioning.

This stage also incorporates change management to ensure that you assess changes to see how they might impact ITSCM plans.

How do you know that ITSCM plans are meeting objectives? Regularly audit plans to ensure that the recovery requirements of the business can be achieved. Perform regular reviews of the business and IT continuity plans at least annually. Examine the reduction in risk and the impact of a possible failure of IT services.

Information Security Management

The information security management (ISM) process focuses on aligning IT security with business security. Information security is an activity that happens as part of corporate governance. The guidance in the Service Design publication helps IT organizations manage information security risks and use enterprise resources responsibly.

You use information security to protect data stores, databases, and metadata. It protects the interests of people who rely on this information, and it protects the systems that deliver the data.



Figure 3. Framework for Managing IT Security

One of the most important elements of ISM is to have a policy that covers all areas of security, including but not limited to: email, access control, use and misuse of assets, Internet use, installation of anti-virus software, and asset disposal.

Security controls are imperative for supporting and enforcing the information security policy. The types of controls used depend upon the potential for damage. Security measures can be preventive, such as giving access rights only to specific groups. They can be reductive to minimize potential damage, such as making backups of material or testing contingency plans. They can be detective, such as monitoring linked-to alerts. Or, they can be repressive to counteract the repetition of an incident, such as blocking an account after several failed attempts to log on. Measures can also be corrective, as in restoring the backup.

ISM is particularly vital because of threats, such as identity theft, and other security issues, such as viruses and data loss. You should provide access only to the information required and only for as long as it is needed. For example, when an employee leaves a company, you should disable their login immediately. If you enforce security management through logins and profiles, access becomes more manageable.

IT organizations can save time and work in a more efficiently by automating as many activities as possible related to user access. With preventive, reductive, detective, repressive, and corrective security management processes in place, you can control who has authorization to access data and can prevent security breaches.

Supplier Management

Documented processes should be available to evaluate suppliers based on their importance to the business, risks associated with the service, and the cost of service.

What should you include in a basic contract or service agreement with a supplier? These documents should contain information on:

Basic terms and conditions (e.g., the duration of the contract, locations, etc.)	Service description and scope (e.g., service functionality)
Service standards (performance requirements for availability)	Workload ranges and management information (KPIs)
Responsibilities and dependencies	

The effort you spend working with suppliers depends on both your strategy and their role as partners. For example, you should involve strategic partners in the most high-value relationships. They often work with senior management and share confidential strategic information to help support long-term plans. You should involve tactical partners in relationships usually overseen by management, as they usually involve significant business activities. Operational partners who may be responsible for Internet hosting have a key but lesser role. These entities are often managed by more junior-level personnel. Finally, commodity suppliers provide products or services, such as copy machines or printer maintenance, and may be managed by administrative assistants.

SUMMARY

By following this guidance, your organization will be more effective at meeting business priorities while also reducing costs and risk through a results-driven approach. These processes support the automation of critical functions and reduce errors.

CHAPTER 5: SERVICE DESIGN — TECHNOLOGY-RELATED ACTIVITIES

This chapter reviews requirements engineering, and entails figuring out what the business needs and then building the requirements. The main point is to get your business customers to explain why they need a certain capability, and then to decide how to put this in place.

There are three types of requirements: functional, management and operational, and usability.

Functional requirements describe what a service should do and include the tasks or functions performed to support a specific function.

Management and operational requirements identify the service constraints users must adhere to, such as how reliable the service must be, and the levels of efficiency and maintainability.

Usability requirements define how the service is used.

Three types of participants should be involved in the requirements process: the business, the user community, and the service development team.

You will want to spend enough time up front to fully understand the requirements. More than 80 percent of errors are introduced at this stage, when tight deadlines sometimes result in incomplete or faulty requirements. The service that is delivered may not cover the service that was actually requested. Plus, according to ITIL, less than 10 percent of the errors happen during the design and development stage.

The following checklist provides guidance for identifying whether a requirement is well formed:

Are the requirements clear?	Is the meaning easy to understand?
Does the requirement support the specific business objectives of the service?	Is the requirement reasonable?
Do any requirements conflict with one another?	Do they imply a solution instead of stating a requirement? (They should state the requirement.)
Are they listed as individual requirements, or are they grouped together in a single entry?	Do several requirements duplicate each other?

Application Management

This section reviews the value of an application portfolio and what this portfolio should contain. The portfolio should provide close relationships and links between applications, services, and infrastructure components. Keep the following factors in mind when designing applications:

- What are the management and operational requirements?
- How will you manage tradeoffs?
- Where can you incorporate application-independent guidelines?
- What should you include in the design process checklist?

Most of the time dedicated to application development projects is spent on designing and developing generic functions. Quite often, too little time is spent on meeting the management and operational requirements. ITIL offers recommendations on coding conventions, templates, and code generation, along with details about major service outputs from development and other suggestions to improve application management.

Application management solutions can put you in total control of your application environments regardless of platform or application. As a result, you'll avoid business outages that result from application failures or performance problems.

The solutions can help increase customer satisfaction in a variety of areas, including improving performance and availability of the application environment, recovering quickly from outages, and minimizing downtime. They can help you meet SLAs by incorporating service level measurement and reporting. This helps detect and resolve problems before they affect the end user.

These solutions should be able to increase efficiency by providing a single point of control with a common look and feel to manage across disparate platforms and by reducing the skill level required to maintain applications. In addition, they should reduce business costs by ensuring higher optimal automation levels for managing business critical processes and through supporting the business demand on resources.

SUMMARY

Requirements engineering is a focus area for ITIL V3. One of the most significant points in this chapter is the importance of building a requirements catalog, where requirements are collected and documented. The chapter includes a sample requirements template to help you analyze whether an activity provides a real business benefit, and enables you to compare requirements. You must be able to justify and prioritize your requirements when designing your services.

CHAPTER 6: ORGANIZING FOR SERVICE DESIGN

Many roles are needed to support service design. The Service Design publication gives several examples, but does not list all the roles present in the industry. The RACI model (responsible, accountable, consulted, and informed) describes the roles listed in the publication.

The greatest value of the RACI model is that it clearly describes the roles that people should play in service design. It identifies who is accountable for particular areas, who needs to be informed of activities, and who should take specific actions. This comprehensive list of roles and responsibilities helps eliminate confusion and ambiguity. When people understand their roles, collaboration improves. This will likely result in fewer bottlenecks that delay decision-making. The model provides an activity analysis to help identify whether more than one role is accountable for an activity. It also indicates if too many people are involved. It's appropriate to share responsibilities as long as the roles are clearly defined.

Steps for building the model include:

Identifying activities and processes	Defining roles
Conducting meetings	Identifying gaps
Distributing information and integrating feedback	Making sure the allocations are followed

The chapter reviews the skills and attributes needed for certain roles, which include management skills, meeting skills, communications, articulation, negotiation, and analytical abilities. The chapter provides an overview of responsibilities for people in the following roles:

<ul style="list-style-type: none">• Generic service owner• Generic process owner• Generic process manager• Generic process practitioner• Design coordinator• Business relationship manager	<ul style="list-style-type: none">• Service design manager• IT planner• IT designer architect• Service catalog manager• Service level manager• Availability manager	<ul style="list-style-type: none">• Continuity manager• Capacity manager• Security manager• Supplier manager
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SUMMARY

This chapter provides excellent guidance to help organizations work more efficiently and effectively. The guidelines outlined in this section should reduce ambiguity so that people have a clear understanding of their roles and responsibilities, and the skills required to perform certain functions. This information helps clarify the scope of various roles. It can help IT organizations determine whether they have any gaps or roles that are not covered, and how to identify ways to fill these gaps. Please refer to the Skills Framework for the Information Age (SFIA), which is a common reference model for identifying the skills needed for IT services.

CHAPTER 7: TECHNOLOGY CONSIDERATIONS

This chapter focuses on how tools can increase efficiency by centralizing, integrating, and automating key processes. By using tools effectively, organizations can improve productivity, reduce costs, and provide better service. This chapter also identifies what you should look for when purchasing software solutions, such as how well they integrate with multi-vendor components; their capability and flexibility in implementation, usability, and support; and their ability to support access rights and scalability. The chapter also recommends following the 80/20 rule for tool selection. It's difficult to find a solution that will meet 100 percent of most requirements, so opt for one that meets about 80 percent. Make sure that the “must-haves” are included in that 80 percent.

Tools not only should support processes, but, ideally, they should go one step further to enforce them. For example, a process can require that the status of an incident be set to “resolved” when an incident has been closed. Processes should be defined down to the work instruction level. Work instructions include detailed information that specifies which steps are needed to complete an activity. These instructions contain more detail than typical procedures. By defining processes down to this level, you can ensure that your staff has clear instructions on how to complete a particular procedure using the appropriate service management application.

This chapter reviews how tools and techniques assist with designing services and components. For example, it explains how tools that offer graphical views of a service and components can simplify designs. The chapter describes how tools can contain or be linked to auto discovery solutions that show how relationships between various elements are graphically represented. This provides the ability to drill down within components to obtain more detailed information.

For example, a CMS containing the CMDB allows you to define services. Start by identifying what part of the service design process is used to design the architecture. Then model the service where information gets sourced in the CMDB. The CMDB allows you to identify configuration items that will be part of the service and how the configuration items relate to each other.

Solutions should help design processes, and should support and assist all stages of the service lifecycle. For example, these tools should be used to manage stages of the service lifecycle, as well as aspects of the service and how it performs. They should support service achievement, including meeting SLAs and OLAs. They should also offer consolidated metrics with views from management dashboards.

Evaluating Service Management Tools

This section reviews important considerations for evaluating service management tools. It provides a variety of factors to consider, such as:

- How the tools conform to open standards
- How data is structured, handled, and integrated
- How multi-vendor infrastructure components are integrated
- Whether the tool offers flexibility in implementation, data sharing, and usage
- How easy the tool is to use
- How the tool provides support for monitoring service levels

Think about how you intend to use the tools and determine priorities. Indicate whether the tools are something you must have; should have; could have if they don't affect anything else; or won't have now, but would like to have in the future. The diagram in Figure 5 reviews the main steps in the process for evaluating the appropriateness of a tool for your organization's needs.



Figure 4. Service Management Tool Evaluation Process

The software should be flexible enough to decide how much customization you want. Since you are most likely not starting from scratch, you will also need to evaluate what the out-of-the-box solution will deliver with respect to integration and automation above and beyond what you already have today. Then, balance this against the cost and effort to implement and transition to the new software.

SUMMARY

Remember, it may be easier to modify your processes to fit the best-practice processes within the tool, rather than to modify the tool to fit our processes—especially if you can achieve the same desired results.

CHAPTER 8: IMPLEMENTING SERVICE DESIGN

This chapter begins with an important question about service design: “Where do you start?” While ITIL recommends starting with a BIA, some organizations may decide to start by resolving a pressing issue for a particular service or by solving an initial business pain with a visionary goal for transforming the business.

For example, if it takes customers ten minutes to submit an order during a peak business period, it might be a good idea to address the order-entry service first. You can do this by evaluating the service design and making improvements. Proceed with one service at a time. Follow consistent service design processes for all services as you move forward.

The BIA is essential to the business continuity process and sets the approach you’ll use for risk reduction and disaster recovery. This analysis will show you the impact a disaster could have on the business, and which parts of the organization will be affected most. The analysis will explore manual workarounds in the event of a disaster—and their costs. It will also break down the impact of service loss and show how this could disrupt business. The knowledge gained from a BIA will help organizations determine a business continuity strategy and provide more information about service functions and importance. For example, it could identify critical business periods so that you can avoid disruptions during those times, and identify acceptable levels and times of service outages.

Executing on the Service Design Vision

ITIL recommends that you follow a six-stage CSI approach to execute on your service design vision. This approach includes identifying the vision and determining where you are. Where do you want to be? How do you get there? How do you know if you’re there? How do you keep going? This chapter outlines steps to help assess whether you’ve met the objectives at each stage.

The first stage, “what is the vision,” involves a variety of activities. These include making sure that you align the IT vision with the business vision; establishing the scope of the project; setting high-level objectives; and establishing governance, sponsorship, and budget guidance.

In the “where are we now” or “as-is” stage, you can assess your current situation by conducting an internal review or audit; conducting an IEC/ISO 20000 assessment; performing a strengths, weaknesses, opportunities, and threats (SWOT) analysis; conducting an audit against COBIT; benchmarking your organization; or performing a maturity assessment. Such assessments help establish initial metrics for improvement.

To identify if you are at the “where do we want to be” stage, define a future state that is expressed as planned outcomes. Examples of planned outcomes should identify increases in customer satisfaction, improvements in process performance, and improvements to service levels, for example.

The fourth stage, “how do we get there,” includes identifying improvements to move from the current state to the future one. This activity involves developing a plan to put these improvements in place. Pay close attention to the guidelines in the Service Transition and Service Operation publications. Examples of some things to identify include improvement actions, risk assessment and management, resources and budgets, and roles and responsibilities.

The next stage, “how can we tell whether we got there,” stresses the importance of designing measurements before you do the implementation. Express the desired state in terms that you can measure, such as a percentage increase in customer satisfaction, or a percentage reduction in service design nonconformances. Reviews can help determine whether you have achieved the new, desired state; identify lessons learned; and identify other improvement actions.

The final stage, “how do we keep going,” focuses on establishing an environment for continual improvement. Some of the areas covered in this stage include developing a learning environment and maintaining the momentum on quality improvement.

Prerequisites for Success

The success of service management projects depends on having clear goals and objectives in the service design stage. When establishing the goals and objectives in this phase, be sure to include critical success factors and key performance indicators to measure value realization. Efficient and effective use of organizational assets—capabilities and resources, including people, processes, procedures, technology, and associated metrics—is important for long-term success.

SUMMARY

Implementing service design is a continual process. The six stages reviewed in this chapter, along with the seven-step improvement model (described in the Continual Service Improvement publication), will help you reach your objective. While some organizations should consider doing a BIA to decide where to begin, others may want to begin by trying to address the services with the greatest pain. Still others, if they don’t have a full understanding of the services they provide to the business—let alone a service catalog to review—may want to start by defining the services they offer. Don’t try to do everything in service design all at once. Rather, take an iterative approach. Manage projects wisely and set goals that are SMART (i.e., specific, measurable, attainable, relevant, and time-based).

CHAPTER 9: CHALLENGES, RISKS, AND CRITICAL SUCCESS FACTORS

Understand your business requirements and priorities so that you stay focused on what matters most to your company. Be sure to communicate effectively, both in explaining what is happening and how it impacts people, and when listening to needs and requirements.

Get commitment from senior management and other members of the staff. This commitment extends beyond getting approval to do a service design project. It includes getting buy-in with a sponsor willing to resolve any conflicts that may arise later.

For example, the user community may not want to use a self-service portal. The sponsor can help your organization convey the value that this brings to the company relative to forecasting and increasing revenue. This influence requires active involvement and commitment at the executive level.

Some common challenges to effective service design include integrating diverse, disparate applications and resources; dealing with unclear or changing requirements; and addressing cost and budget limitations. The situation is further complicated by the constraints of old technology and legacy systems.

Additional challenges include unreasonable targets and timescales, and poor supplier management. The list of challenges is long. If you become aware of the challenges, you can identify objections and build a case for dealing with them. For example, if people have unreasonable expectations of SLAs, you can educate your internal customers about which SLAs are realistic. Or, if improving the SLAs is important to the business, you may need to change processes and invest in technologies to improve these agreements.

The section also includes a detailed list of risks to identify before they lead to problems. A few primary risks include:

- Business requirements may not be clear to IT staff. This could lead to decreased availability of critical services during an upgrade or change.
- Insufficient time is given to the design stage. This could lead to services that do not meet their objectives because they have been poorly planned.
- Insufficient testing can lead to a poor design, which results in a poor implementation.

Critical Success Factors and Key Performance Indicators

Use critical success factors (CSF) to identify key elements of success. The CSFs should be agreed on when services and processes are being designed. An example of a CSF might be that applications are rolled out to all locations worldwide, as planned, instead of to just a few regions.

Key performance indicators (KPIs), which were reviewed earlier in this publication, are used to measure the achievement of each CSF. The KPI measurements quantify objectives and measure performance. Set and measure KPIs against the design and use KPIs to measure each process. An example of a KPI for process design includes the percentage of service design plans completed on time.

SUMMARY

Recognize that there will be challenges and risks to execute effective service design, and address them proactively. Define measures of success that include quick wins. Achieving quick wins will help the organization see the value of a service design approach. If it takes two years to prove success, your project could lose momentum and support. Your project also might need re-evaluation before it's implemented, as the business need or requirements may have changed since its start. The service may no longer be required, or a major modification may be necessary to address the current business objectives. Consequently, it's important to show results in three months, even if they are just incremental achievements. Some benefits will be short term, while others will take many months to achieve. Find the right mix.

AFTERWORD

The ITIL Service Design publication provides guidance on how to create and align appropriate and innovative services with the business, including the IT policies, architectures, and documents.

Make sure you take advantage of the templates in the appendix of the Service Design publication. They provide practical examples to help you start service design or to enhance existing service design processes. In addition, pay close attention to the discussion of technology considerations to understand how to automate and integrate ITIL best practices.

As mentioned earlier in this booklet, applying the principles of service design is like developing the blueprint for a house. By following ITIL guidance, you will create a better “house” by addressing customer (i.e., business) needs, coordinating and collaborating, and complying with governance regulations. This approach will improve the value IT delivers to your business—a goal worth pursuing.

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