IT Infrastructure Library (ITIL®) Foundation Certification (2011 Lifecycle Edition)

IT Infrastructure Library (ITIL®) Foundation Certification (2011 Lifecycle Edition)

Part Number: 093030
Course Edition: 2.0

Acknowledgements

PROJECT TEAM

Authors	*Media Designer*	*Content Editor*	*Technical Reviewer*
John Erhardt Laurie Perry Neal Rowland, ITIL Expert	Brian Sullivan	Tricia Murphy Angie French	Patrick von Schlag, ITIL Expert

Logical Operations wishes to thank the members of the Logical Operations Instructor Community for contributing their technical and instructional expertise during the creation of this course.

Notices

DISCLAIMER

While Logical Operations, Inc. takes care to ensure the accuracy and quality of these materials, we cannot guarantee their accuracy, and all materials are provided without any warranty whatsoever, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. The name used in the data files for this course is that of a fictitious company. Any resemblance to current or future companies is purely coincidental. We do not believe we have used anyone's name in creating this course, but if we have, please notify us and we will change the name in the next revision of the course. Logical Operations is an independent provider of integrated training solutions for individuals, businesses, educational institutions, and government agencies. The use of screenshots, photographs of another entity's products, or another entity's product name or service in this book is for editorial purposes only. No such use should be construed to imply sponsorship or endorsement of the book by nor any affiliation of such entity with Logical Operations. This courseware may contain links to sites on the Internet that are owned and operated by third parties (the "External Sites"). Logical Operations is not responsible for the availability of, or the content located on or through, any External Site. Please contact Logical Operations if you have any concerns regarding such links or External Sites.

TRADEMARK NOTICES

IT Infrastructure Library (ITIL®) Foundation Certification (2011 Lifecycle Edition)

About This Course

If you are an IT professional looking to get into IT service management using ITIL best practices, the *IT Infrastructure Library (ITIL®) Foundation Certification (2011 Lifecycle Edition)* course is the first step in your preparation. The course will prepare you for the ITIL Foundation exam, introducing you to basic concepts used in IT service management. In this course, you will acquire the essential skills and information necessary to lead and manage an IT business service through every stage of its lifecycle.

Implementing and supporting IT services in the workplace can often be a daunting task since all organizations differ in key ways. Whether it's upgrading from one service to another, improving an existing service, or designing a service from scratch, business-focused leadership and management are crucial elements of services that your customers will perceive as valuable. The course will prepare you for the ITIL Foundation exam, introducing you to basic concepts used in IT service management. In this course, you will identify the fundamental concepts of ITIL to help prepare yourself for the Foundation Certification.

This course is accredited by ACQUIROS and PEOPLECERT.

Target Student

The target student is any IT professional who works in IT service support and delivery, including Service Desk/Help Desk managers and staff; IT department managers; or any other IT support and delivery roles; who either wishes to advance to service management, benefit from the knowledge of a de facto standard for describing IT service and support, or who wishes to refine their skills in their current service management job to include ITIL best practices.

Course Prerequisites

End-user level computer and networking skills are required. You can obtain this level of skill and knowledge by taking the following Logical Operations course:

- *Using Microsoft® Windows® 8.1* or any similar introductory course.

Some level of work experience in IT service support or IT service delivery is highly recommended. You may wish to take the following Logical Operations course, or have the equivalent level of experience:

- *CompTIA® IT Fundamentals™ (Exam FC0-U51)* or other courses selected from the Logical Operations "IT Systems and Security" curriculum library.

Course Objectives

In this course, you will describe the fundamental concepts of ITIL®, and identify the stages of the IT Service Management Lifecycle. You will do so by examining the components of the lifecycle as they are presented in the ITIL Foundation Syllabus, beginning with the

initiation of services in Service Strategy (SS), and concluding with an analysis of existing services in the Continual Service Improvement (CSI) state.

You will:

- Describe the history and basic concepts of ITIL.
- Describe Service Strategy in the IT Service Lifecycle.
- Describe Service Design in the IT Service Lifecycle.
- Describe Service Transition in the IT Service Lifecycle.
- Describe Service Operation in the IT Service Lifecycle.
- Describe the various functions of Service Operation Lifecycle in the IT Service Lifecycle.
- Describe Continual Service Improvement in the IT Service Lifecycle.

The CHOICE Home Screen

Logon and access information for your CHOICE environment will be provided with your class experience. The CHOICE platform is your entry point to the CHOICE learning experience, of which this course manual is only one part.

On the CHOICE Home screen, you can access the CHOICE Course screens for your specific courses. Visit the CHOICE Course screen both during and after class to make use of the world of support and instructional resources that make up the CHOICE experience.

Each CHOICE Course screen will give you access to the following resources:

- **Classroom**: A link to your training provider's classroom environment.
- **eBook**: An interactive electronic version of the printed book for your course.
- **Files**: Any course files available to download.
- **Checklists**: Step-by-step procedures and general guidelines you can use as a reference during and after class.
- **LearnTOs**: Brief animated videos that enhance and extend the classroom learning experience.
- **Assessment**: A course assessment for your self-assessment of the course content.
- Social media resources that enable you to collaborate with others in the learning community using professional communications sites such as LinkedIn or microblogging tools such as Twitter.

Depending on the nature of your course and the components chosen by your learning provider, the CHOICE Course screen may also include access to elements such as:

- LogicalLABS, a virtual technical environment for your course.
- Various partner resources related to the courseware.
- Related certifications or credentials.
- A link to your training provider's website.
- Notices from the CHOICE administrator.
- Newsletters and other communications from your learning provider.
- Mentoring services.

Visit your CHOICE Home screen often to connect, communicate, and extend your learning experience!

How to Use This Book

As You Learn

This book is divided into lessons and topics, covering a subject or a set of related subjects. In most cases, lessons are arranged in order of increasing proficiency.

The results-oriented topics include relevant and supporting information you need to master the content. Each topic has various types of activities designed to enable you to solidify your

understanding of the informational material presented in the course. Information is provided for reference and reflection to facilitate understanding and practice.

Data files for various activities as well as other supporting files for the course are available by download from the CHOICE Course screen. In addition to sample data for the course exercises, the course files may contain media components to enhance your learning and additional reference materials for use both during and after the course.

Checklists of procedures and guidelines can be used during class and as after-class references when you're back on the job and need to refresh your understanding.

At the back of the book, you will find a glossary of the definitions of the terms and concepts used throughout the course. You will also find an index to assist in locating information within the instructional components of the book.

As You Review

Any method of instruction is only as effective as the time and effort you, the student, are willing to invest in it. In addition, some of the information that you learn in class may not be important to you immediately, but it may become important later. For this reason, we encourage you to spend some time reviewing the content of the course after your time in the classroom.

As a Reference

The organization and layout of this book make it an easy-to-use resource for future reference. Taking advantage of the glossary, index, and table of contents, you can use this book as a first source of definitions, background information, and summaries.

Course Icons

Watch throughout the material for the following visual cues.

Icon	*Description*
	A **Note** provides additional information, guidance, or hints about a topic or task.
	A **Caution** note makes you aware of places where you need to be particularly careful with your actions, settings, or decisions so that you can be sure to get the desired results of an activity or task.
	LearnTO notes show you where an associated LearnTO is particularly relevant to the content. Access LearnTOs from your CHOICE Course screen.
	Checklists provide job aids you can use after class as a reference to perform skills back on the job. Access checklists from your CHOICE Course screen.
	Social notes remind you to check your CHOICE Course screen for opportunities to interact with the CHOICE community using social media.

1 Introduction to ITIL

Lesson Time: 1 hour, 30 minutes

Lesson Introduction

In order to understand how IT Infrastructure Library (ITIL) can help you both now and in the future, it is important to understand where it came from, and what its building blocks are. In this lesson, you will become familiar with the history of ITIL, its unique vocabulary, and how its best practices can assist IT service providers in delivering perceived value to their customers.

In the same way that you have to crawl before you can walk, you have to understand basic concepts about ITIL before you can see how they interact to form the larger philosophy. This lesson will introduce ITIL in general, show how it describes and manages various aspects of an IT service, and lay the groundwork for understanding more advanced concepts of ITIL.

Lesson Objectives

In this lesson, you will describe the history and basic concepts of ITIL. You will:

- Describe the basics of ITIL and the ITIL certifications.
- Describe the Service Lifecycle.

TOPIC A

ITIL Basics

This lesson covers the fundamental building blocks of ITIL, including its history, its most basic vocabulary, and the certification options available to you as a student of ITIL. In this topic, you will describe the basic concepts of ITIL and the ITIL certifications.

Unlike many other management strategies, ITIL's unique history was born in the workplace; although its history might not be familiar to everyone, its application will be. But in order to reach the comfort level where ITIL ideas can be applied, you will need a solid foundation in understanding where ITIL came from, what it does, and how it uniquely categorizes information in the IT service industry. Chances are very good that you already perform these tasks in your workplace, but that you do not call them by the terms ITIL uses; this topic will help you comprehend ITIL's methods of categorizing information and workflow.

ITIL

The *Information Technology Infrastructure Library (ITIL)* is a community-defined framework and library of IT service management best practices. It began in England in the late 1980s as a project by the Central Computer and Telecommunications Agency (CCTA). This agency produced a series of books devoted to the systematic delivery of quality IT services in the United Kingdom and the Netherlands, but the library quickly became global. Over time, this library has grown and has been enhanced with the addition of best practices from around the IT service industry. It has become a successful and popular framework.

ITIL Updates

ITIL has been refreshed three times in its lifetime: ITIL v2 was released in 2000–2002, ITIL 2007 was released in 2007, and ITIL in its current form without any version number was released in 2011. During this time, the library was edited, modified, and updated from 31 books, to seven books, to its current count of five core books, one for each stage in what is known as the Service Lifecycle.

Organizations Involved with Maintaining ITIL

There is no governing body called ITIL that manages all aspects of the certification and the library. ITIL's maintenance is the result of the combined efforts of several different international organizations.

Organization	*Role*
itSMF	The *IT Service Management Forum (itSMF)* is a global non-profit organization that supports IT service management, particularly through publications in the ITSM Library series. There are more than 40 national chapters of the itSMF, all under the governance of itSMF International.
AXELOS	AXELOS is the organization responsible for developing and managing a portfolio of best practice methodologies that includes ITIL. AXELOS is responsible for defining the ITIL exams, qualification schemes, and certification systems; publishing the core ITIL books and associated syllabi; and accrediting the Examination Institutes.

Organization	Role
Examination Institutes (EI)	Several organizations have been accredited by AXELOS for the delivery of the ITIL exams. Such organizations include the Examination Institute for Information Science (EXIN), the British Computer Society (BCS), APMG International, PEOPLECERT, and ACQUIROS. **Note:** As of January 1, 2018, PEOPLECERT will be the only authorized Examination Institute delivering ITIL exams.

ITIL Qualification Schemes

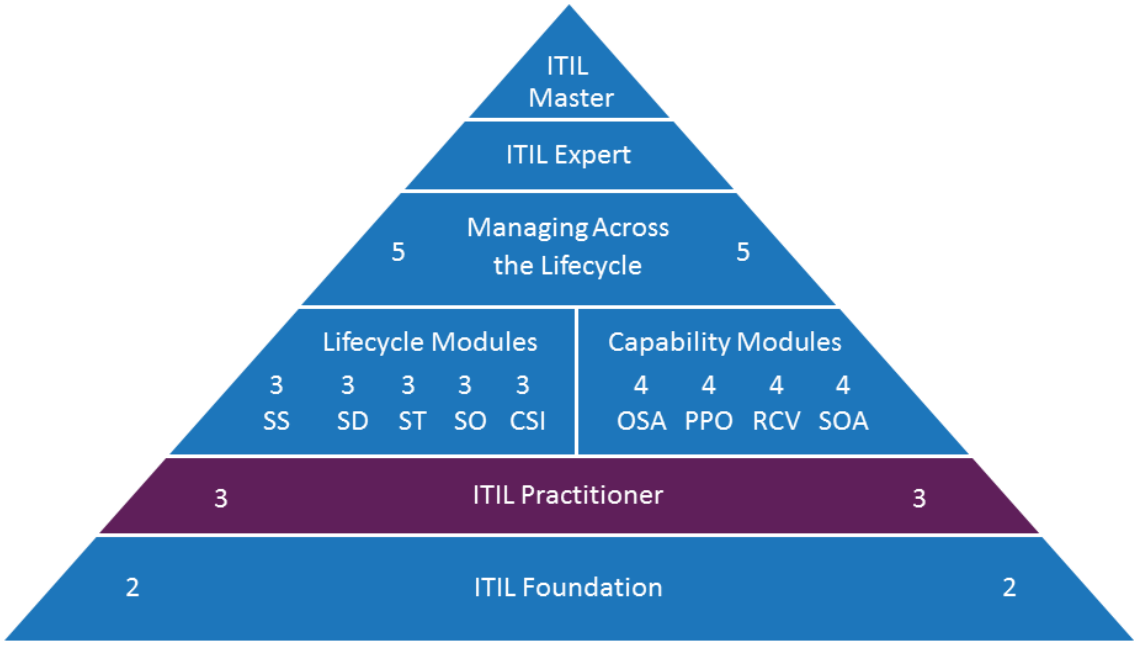

Figure 1-1: The ITIL Qualification Schemes.

The following table describes the ITIL qualification schemes.

Scheme	Description
Foundation level	Covers the basic knowledge of ITIL's core processes and concepts. The current training materials will prepare you for this exam and qualification scheme, and you earn two credits. It is governed by the ITIL Foundation syllabus, which aligns with the five core ITIL publications. They provide a competence and skills framework as well as a training path for service management.
Practitioner level	Requires you to have the ITIL Foundation certification. Building on the foundational knowledge, this course introduces nine guiding principles and three core competencies that are integrated with the Continual Service Improvement (CSI) approach to apply ITIL in real-world situations. When you pass this open-book exam, you earn three credits toward Expert level.

Scheme	*Description*
Intermediate level	Covers material for two separate streams: • One stream based on the Service Lifecycle, comprising five exams, one for each stage of the Service Lifecycle. For each exam, you earn three credits. • One stream based on practitioner capabilities, comprising four exams, covering Operational Support and Analysis (OSA); Service Offerings and Agreements (SOA); Release, Control, and Validation (RC&V); and Planning, Protection, and Optimization (PP&O). For each exam, you earn four credits.
ITIL Expert	Covers the full lifecycle approach. You must have passed the Foundation exam, have at least 22 credits, of which typically 2 come from ITIL Foundations, and at least 15 must be earned at the Intermediate level. You must complete the Managing Across the Lifecycle (MALC) capstone exam, at which point you earn the remaining required 5 credits.
ITIL Master	Successful ITIL Master candidates will have to demonstrate how they applied ITIL concepts in real life experiences and areas. There is no exam for this level, only a review of work while holding a leadership role in an IT organization.

Note: The official ITIL Foundation syllabus can be downloaded from axelos.com, and is provided with the course files on the CHOICE platform.

ITIL Exams

Within the ITIL qualification schemes, there are several exams that one must pass.

Scheme	*Exam(s)*
Foundation level	The ITIL Foundation level is a multiple-choice, 40-question exam, and you need a score of 65% to pass. It is either online or paper-based, and can take up to 60 minutes. The exam can include questions containing qualifying words (i.e., "not" and "best") that cover any topic within the scope of the material; therefore, you should have a thorough understanding of the syllabus. You neither receive points nor negative marks (or deductions) for incorrect answers.
Practitioner level	The ITIL Practitioner exam is a multiple-choice, 40-question exam, and you need a score of 70% to pass. It is either online or paper-based, and can take up to 1 hour 45 minutes. You are allowed to have an untouched, printed (loose sheets or bound) copy of the *ITIL Practitioner Guidance* during the exam.

Scheme	*Exam(s)*
Intermediate level, Lifecycle Stream	For the Lifecycle Stream: • Service Strategy (SS). Includes multiple choice, scenario-based, and gradient scored questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Service Design (SD). Includes multiple choice questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Service Transition (ST). Includes multiple choice questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Service Operation (SO). Includes multiple choice, scenario-based, and gradient scored questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Continual Service Improvement (CSI). Includes multiple choice, scenario-based, and gradient scored questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes.
Intermediate level, Capability Stream	For the Capability Stream: • Operational Support and Analysis (OSA). Includes multiple choice questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Service Offerings and Agreements (SOA). Includes multiple choice questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Release, Control, and Validation (RCV). Includes multiple choice questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes. • Planning, Protection, and Optimization (PPO). Includes multiple choice, scenario-based, and gradient scored questions. Total questions: 8. Passing score is 70%. Exam is online or paper, and can take up to 90 minutes.
ITIL Expert	The Managing Across the Lifecycle (MALC) capstone exam includes multiple choice, scenario-based, and gradient scored questions. Total questions: 10. Passing score is 70%. Exam is online or paper, and can take up to 120 minutes.
ITIL Master	Successful ITIL Master candidates will have demonstrated an ability to apply ITIL concepts to new areas.

Note: To learn more, check out the LearnTO **Participate in the ITIL Professional Community** presentation from the **LearnTO** tile on the CHOICE Course screen.

Services and IT Services

One of the most critical terms to understand in ITIL is the service, or the IT service. In the IT business world, a *service* is simply a means of delivering value to customers by facilitating the *outcomes* customers want to achieve. An IT service is a service that does this through information technology. At the same time, these customers do not assume ownership of specific costs and risks; the service provider assumes these risks instead and provides only the benefit.

Customers can be internal or external. Services can also be internal or external. *Internal services* are delivered to individuals, groups, or departments within your organization. *External services* are delivered to individuals or groups outside of your organization and directly affect business outcomes. Knowing the difference between internal and external services is important when it comes to measuring the return on investment of services. Decisions on how to deliver, improve, change, manage, and balance in relationship to all the other IT services must consider both the internal and external customers.

For example, suppose that IT supports a business intelligence report that displays real time data for the business. The business has decided to display this report for end user customers to view and evaluate on the company's website. Now IT is supporting a service that brings value to their internal customer (the business) and their external customer (the end users).

IT Services

Every company provides IT services whether it refers to them as IT services or not. If an employee uses a computer and experiences an issue, the internal person who responds to that service call is providing an IT service. If a printer malfunctions and an outside employee is called to fix the problem, that is also an IT service. Examples of services can range in complexity from a Service Desk, to an application, to telephone or email support, to installation support.

Services and Risk

Cost, value, and risk are considered when you build a business case. With IT services, customers do not want to assume risks. Users just want their computers to work, and they don't want to have to become technicians or get trained to fix computers. This is an example of a cost they're not willing to incur. A service contract from a third party to support a company's printers, for instance, alleviates users from the risk of these printers breaking or needing maintenance; they just want to be able to print.

Service Management and IT Service Management

Service management is a set of specialized organizational capabilities for providing value to customers in the form of services. *IT service management* (ITSM) is the implementation and management of quality IT services that meet the needs of the business. In service management, services are matched to incidents and are tracked in a way that clearly demonstrates the value of the service to internal or external customers. Successful, profitable, and scalable IT service management is the fundamental concern of ITIL.

Managing Services at Hexa Web Hosting

Jeff is a Desktop Support Technician for Hexa Web Hosting. The particular IT service he performs daily involves maintaining and troubleshooting the desktop computers used at the large global headquarters. When a problem occurs with a desktop computer in the building, the user reports the issue through an online tracking database that logs the necessary information and assigns it a ticket number. This ticket number is routed through a program that identifies which technician has both the expertise and the available time to assist with the issue. The online tracking tool is constantly being reviewed to see how effective it is, both in the speed of response and the accuracy of the employee assignment. Both the tool itself and the review of the tool are examples of service management; it is not enough for Jeff to be skilled in providing desktop support. The real value from the customer's perspective is realized when Jeff provides an efficient and effective solution to the business problems related to failures on the desktops.

Value Creation through Services

Value creation is what happens when customers achieve business outcomes leveraging IT services. This business value can be described as a combination of utility and warranty. *Utility* (fitness for purpose) is the functionality of a service. *Warranty* (fitness for use) is the assurance that the service

will meet the requirements agreed-upon between the customer and provider. The presence of both utility and warranty is what creates the value, and this is determined by the customer. Value can be understood in terms of a customer's perception, how well the service meets expectations, and how well it facilitates creating the business outcomes the customer wants. The value of services for customers is created by the intersection of business outcomes, the business preferences and assets, and the business perceptions.

Figure 1-2: Value is a product of utility and warranty.

The Value, Utility, and Warranty of Virus Detection Software

Evan works for a company that sells subscriptions for virus protection software. The software scans the protected computer for all types of malware and compares what it finds to a large database of known threats. Because these threats are always changing, Evan's company updates this database at regular intervals, twice weekly, with emergency updates if a new threat is detected. A customer finds value in this service if the virus protection does what it is supposed to do—scan and detect viruses—and if their computers are as available and secure as promised by Evan's company.

Utility and Warranty

The perceived value of a product or a service to the customer is based on the effects of both utility and warranty. The utility aspect of the service is often defined as what it does. The utility of a service in ITIL is described as its fitness for purpose, and is the actual, visible benefit of the service that meets a particular need. The warranty component of value is the assurance that the service will meet its requirements, and is described as its fitness for use. The product or service itself, combined with the guarantee that the product or service will meet expectations, is what creates value for the customer.

It is important to understand early on in the lifecycle that value is defined by the users of the service. Pursuing services with the greatest perceived value should be a top priority for your organization.

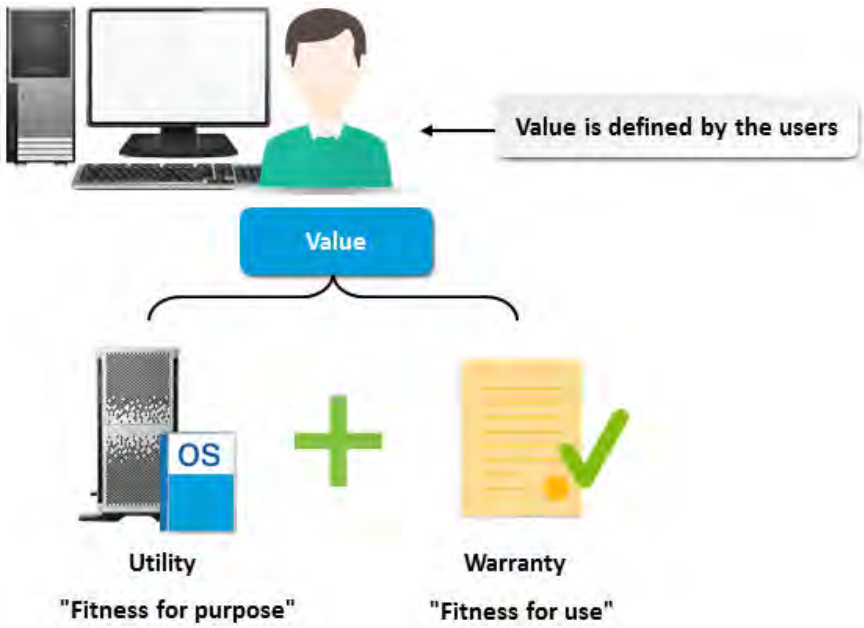

Figure 1-3: Value is based on both utility and warranty.

Contract with an ISP

Rudison Technologies, a technological services company with a small but growing international customer base, contracts an outside Internet service provider (ISP) to provide Internet access for its users. The service itself, which is the ability to access the Internet, is the utility of the service. The warranty of the service is that access will be provided 24 hours a day and that technicians are readily available to deal with any problems that may occur.

The Service Provider

A *service provider* is an organization that provides a service to a customer base. These customers may be within the company or may be external. In the ITIL world, the term "service provider" is often used for "IT service provider."

Thin Client Computing

Fuller & Ackerman Publishing is an advertising company that uses a cloud-based approach to computing. Instead of hosting applications internally with its own servers, the company cuts down on underutilized computing resources by using a third party to host applications over the Internet. This third-party company is also providing application hosting services for Scrimdown Playhouse.

Types of Service Providers

ITIL describes three different types of service providers.

Service Provider Type	*Description*
Type I	*Internal service provider.* A *Type I service provider* is embedded within a business unit. For example, a department with its very own, dedicated IT support group is using a Type I provider. An organization may employ several Type I service providers.

Service Provider Type	Description
Type II	Shared services unit. A *Type II service provider* provides services to several business units. For example, a centralized IT department that serves all of the other departments within an organization is a Type II provider.
Type III	*External service provider.* A *Type III service provider* is concerned with providing IT services to customers outside of the company. For example, a company that purchases a service contract from a separate organization to maintain and support desktop hardware is utilizing a Type III provider.

Best Practices and the Benefits of ITIL

A *best practice* is an industry-wide method that has proven itself in the workplace and used successfully by multiple organizations; ITIL is an example of a best practice. Best practices can be considered the backbone of any organization that wishes to improve the delivery of their IT services; without them, no one knows which services work, which need improvement, and which need to be rebuilt. ITIL acknowledges that best practices tend to come from three sources:

- Public frameworks, such as COBIT (Control Objectives for Information and Related Technologies).
- Standards, such as ISO 9000.
- The proprietary knowledge of an organization.

ITIL is successful because it offers a practical approach to IT service management and focuses on providing value to both customers and the organization that practices it. From the customers' perspective, ITIL ensures that the organization is continually improving on the services it provides in an effort to maximize the value of those services and the overall customer experience. From an organization's perspective, employing ITIL best practices supports the business goals, helps to manage risk, and facilitate change with minimal impact to customers and the organization.

Having the guidance and framework of ITIL at an IT organization's disposal provides the tools and practices to support appropriate management of their IT services. Each organization has the ability to incorporate and apply ITIL's vendor-neutral, non-prescriptive principles and practices that meet their organizational needs.

Complementary guidance is available for various verticals of the ITIL Guidance. For more information, go to www.axelos.com/best-practice-solutions/itil.

Common Examples of Best Practices

There are easily thousands of examples of best practices in any organization, and these are usually learned and adopted because of exhaustive and continuous trial-and-error, or lessons learned. Some might include: documenting conference calls with outside clients so that expectations are clearly defined; determining a client's specific software requirements before building a solution that might use a version they don't or can't support; refilling toner on heavy-use printers every month, whether there is a service call or not; leaving a copy of the telephone instructions at the desks of any user who has difficulty accessing their voice mail, or evaluating various aspects of processes in relation to best practices through benchmarking.

Note: To learn more, check out the LearnTO **Select the Best Parts of ITIL for Your Organization** presentation from the **LearnTO** tile on the CHOICE Course screen.

Stakeholders

Generally when referring to *stakeholders* in IT service management, you are referring to those individuals or groups that are part of the business or who represent the customer. Business groups

and the customers are stakeholders, but so are those who use the services, those who deliver the services, and all others that are affected by the service, its development, and its operation. Any person with an interest in an organization, project, or IT service, including the activities, targets, resources, or deliverables may be considered a stakeholder. Stakeholders may include customers, partners, employees, shareholders, owners, and more.

Processes

A *process* refers to a set of activities that are used to accomplish an objective or outcome. There are many processes associated with each core publication of the Service Lifecycle. To put it simply, a process is a structured way of taking inputs and creating defined outputs. Processes can be measured, have results, get delivered to a customer, and are iterative—that is, respond to specific events.

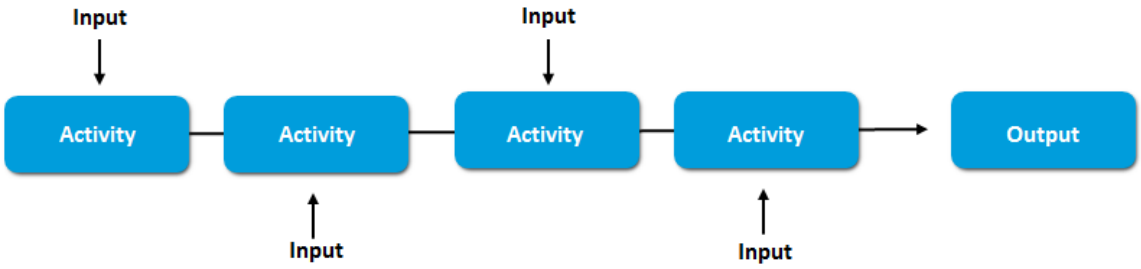

Figure 1-4: Structure of a process.

Sample Process: Adding a Feature to an Application

Wendy is a User Advocate for the software division of Greene City National Bank. A customer has requested that a certain feature be added to an application. The specific steps she takes to bring this single piece of user feedback from suggestion, to proposal, to incorporation, and finally to deployment, are part of a change management process. Since it uses a specific input—user feedback—and creates a defined output—a new software feature—it is a process.

Process Improvement

Process improvement is a valuable element of a process and is supported through process feedback. Input from anybody within or outside of the organization who is affected by a process can lead to steady improvements over the life of that process.

The Process Model

A *process model* is a visual representation of the workflow and decision-making that occurs within a process, and it can be seen as a standard template that organizations can modify according to their own needs in a given lifecycle stage. A process model typically identifies the Process Owner or manager, the inputs and outputs, the intended customer of the outcomes, and any related roles, functions, and activities.

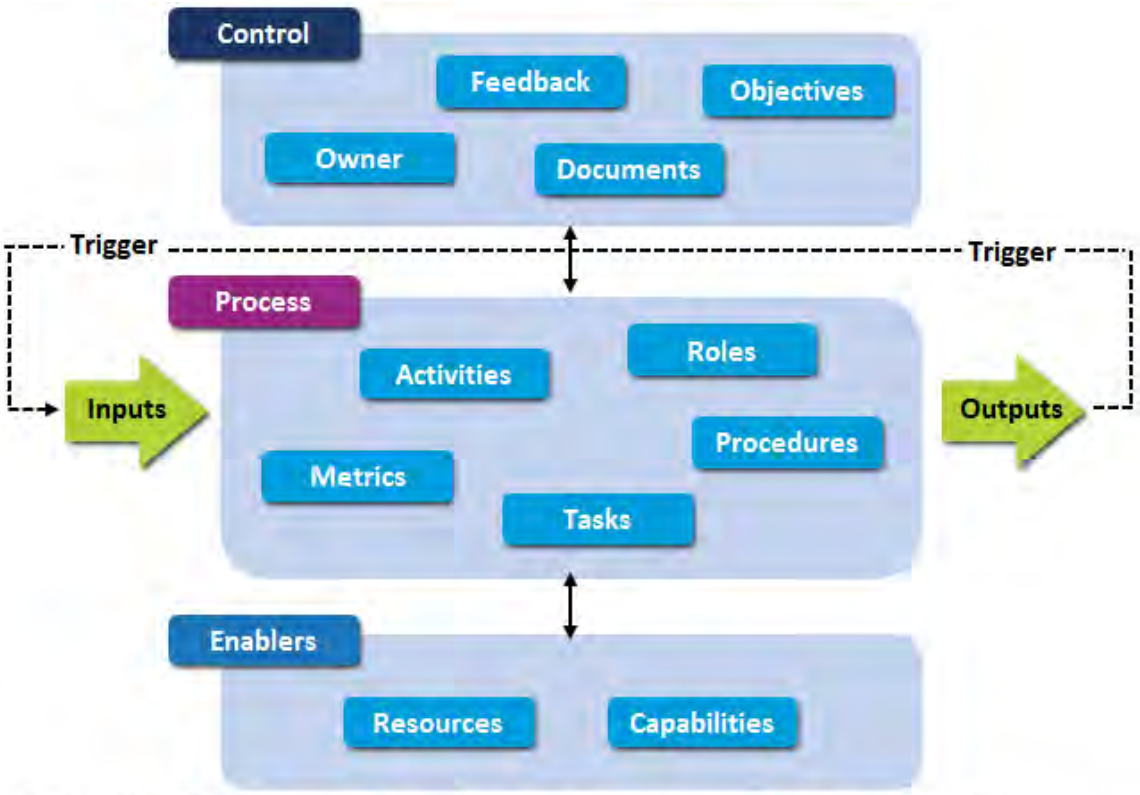

Figure 1-5: A sample process model.

Governance

Governance is ensuring that policies and strategy are actually implemented, and that required processes are correctly followed. It can also be looked at as exerting authority and control to ensure that IT services are meeting the needs of the business.

Governance of Incidents

A user at Greene City National Bank has noticed that his Internet connectivity is dropping every 30 minutes or so, and comes back for just a few minutes at a time. He overhears people in his row complaining about the same problem, and it's discovered that everybody connected through the same switch is experiencing occasional outages. After the incident is logged, the ITS team is dispatched and the switch is replaced. This situation involves an incident and the response of incident management (to restore service in as short a time as possible). The ability to control incident management in order to meet evolving customer expectations falls under the umbrella of IT governance.

The RACI Model

The biggest challenges in any IT process or project are fully understanding who is responsible for what, and fully understanding who is accountable. This is where the *RACI Model* comes in. The RACI Model identifies the roles and responsibilities for services and their supporting processes. RACI stands for Responsible, Accountable, Consulted, and Informed, and it is a model used to help define roles and responsibilities within CSI. Accountable resources are identified, and they then own the outcomes of their own activities.

	Program Manager	PM Assistant	Board of Directors	Service Manager	Legal Adviser
Activity 1	R		A		
Activity 2	A	R		I	C
Activity 3	RA		I		I
Activity 4	RA				C
Activity 5	A	R		I	

Figure 1-6: The RACI Model.

Roles

A *role* is a set of responsibilities and is defined in a process. Roles and responsibilities do not necessarily need to be distributed evenly among all of the team members associated with a particular process: some individuals will have more than one role. In small organizations, a single individual may be assigned multiple roles; while in larger organizations, the roles are often handled by separate individuals or groups.

In all processes, there are four generalized roles with varying responsibilities.

Role	*Description*
Process Owner	Responsible for the overall ownership and accountability of the process. Process Owners seek ways to improve the process at a holistic level.
Process Manager	Responsible for overseeing and administering the process. Process Managers manage the day-to-day coordination and facilitation of the process. In many organizations, the Process Owner and Process Manager roles are handled by the same person.
Process Practitioner	Responsible for the actual carrying out of the process.
Service Owner	Accountable for the performance of the service.

Note: It may be useful to identify more specific roles within various processes in the service lifecycle. Even though these specific roles are not directly addressed in the ITIL Foundation syllabus, this manual occasionally refers to them for convenience or when commonly used titles provide helpful context.

Having Multiple Roles

Stephen works in Sales Support for Fuller & Ackerman Publishing. Some of his duties to internal salespeople include maintaining an accurate, timely list of all books that are available for sale, and making sure that the appropriate staff and only the appropriate staff have the correct access to the list. This duty technically falls in the Security Manager role. However, he also manages a database for

internal use that allows the sales manager to search for publishing prices from third-party suppliers that have contracts with Fuller & Ackerman Publishing. This falls under the Supplier Manager role, which is a separate but not exclusive role.

Note: To learn more, check out the LearnTO **Distinguish Between a Job Role and a Job Title** presentation from the **LearnTO** tile on the CHOICE Course screen.

Functions

A *function* is a team or group of people, and the tools they use to complete one or more processes or activities. While the single word "function" is the appropriate term for ITIL, you could also think of it in terms of a department or functional silo.

A Common Function

Jeff, a Desktop Support Technician, is part of the Service Desk support staff at Hexa Web Hosting. The Service Desk, as a larger unit of individuals who perform similar support services, is a single function. The tools Jeff uses as part of his job are also part of the function; this includes the database used to track requests and any hardware he needs to resolve a request.

Activities

An *activity* is an action or set of actions designed to achieve a certain result, or outcome. It's usually defined in a process or plan and documented in procedures. All organizations perform activities without necessarily labeling them as such; the activity label helps to separate and categorize actions within a process to better manage workflow and to help with monitoring and improving a service.

An Activity to Grant Rights

Sam is a new hire in Fuller & Ackerman's advertising and public relations division. On his first day, he is welcomed to the staff, shown to his desk, and given his temporary password to log on to his computer for the first time. After logging on and navigating to the shared network folder where his orientation materials are stored, he finds he does not have the proper permissions to view the contents of the network share, and is given an "Access Denied" message. An IT Service Desk employee assigned to help him performs a particular activity by granting rights to this folder.

Service Automation

Service automation is the usage of technology to monitor and analyze the assets used by an IT organization. Effectively automating the performance of infrastructure components, as well as the implementation of services, can result in significant improvements for both the utility and warranty of the services provided.

Service automation can help you adjust capacity in response to fluctuations in demand and also provide unattended services for users who are in different time zones or who wish to access services after typical usage hours. Data collected through automation can serve as a basis for sound decision making about process changes to improve quality. Service automation may also provide a means of handling complex calculations that may be required for scheduling or optimizing applications.

Scheduled Backup

The IT department at Rudison Technologies performs a daily backup of server data as a safeguard against data loss. However, this process requires a portion of the server's processing power, which affects its availability and response time. Many users at Rudison use teleconferencing as a means of holding virtual meetings, and these applications are very sensitive to degradation in performance. Therefore, it is critical that the IT department chooses a server backup time that does not cause an

interruption to users. Service automation can provide the IT staff with usage statistics in order to determine the best time to schedule back-end server operations.

ACTIVITY 1-1

Discussing Basic ITIL Concepts

Scenario

In this activity, you will discuss basic concepts of ITIL.

---

1. A Service Desk is an example of:
   - ○ A process model.
   - ✔ A function.
   - ○ An activity.
   - ○ A process.

2. An action or set of actions designed to achieve a certain result is:
   - ○ A role.
   - ○ A function.
   - ✔ An activity.
   - ○ A process.

3. True or False? According to ITIL, roles and responsibilities need to be distributed evenly among team members.
   - ☐ True
   - ☑ False

4. A Service Desk employee is helping a user change their password. This operation is an example of:
   - ○ A process.
   - ✔ An activity.
   - ○ A function.
   - ○ A role.

5. Which of the following statements best reflects the warranty aspect of value creation?
   - ○ Upgraded switches allow for increased traffic bandwidth.
   - ○ A new service desk ticket interface allows support requests to be submitted faster.
   - ○ An application is patched so that users running older operating systems can still use it.
   - ✔ An antivirus software vendor agrees to support any machines that manage to become infected.

6. What is the responsibility of the Process Owner?

- ○ Coordinate and deploy high-quality solutions.
- ○ Ensure that the process adheres to federal regulations.
- ○ Coordinate and design all required technology for the service.
- ✔ Ensure that the process is being performed according to documentation.

ACTIVITY 1-2

Examining ITIL Certification Schemes (Optional)

Before You Begin

You can perform this activity in class if you have a web browser. Otherwise, your instructor may demonstrate it now, and you can investigate further on your own outside of class.

Scenario

In this activity, you will have an opportunity to perform your own investigation of the various ITIL certification schemes.

---

1. Open an Internet browser window and visit the AXELOS ITIL Certification page at **https://www.axelos.com/certifications**. Select the **View the ITIL Certifications** button to view the different levels of certification within the ITIL scheme.

2. **What are the available ITIL certification options?**

3. **Expand the Foundation Level section and then select the ITIL Foundation Level page link. This page lists several areas of knowledge that you will become more familiar with by the end of the course. Of the listed items, which do you feel are most applicable to you in your profession?**

4. Select the **Back** button in your web browser, and then expand the **Practitioner Level** section. Select the **ITIL Practitioner Level Page** link to view the ITIL Practitioner Certification.

5. **How is the ITIL Practitioner credential different from the ITIL Foundation credential?**

6. **Select the Back button in your browser again, and follow the links to view the ITIL Intermediate Level page. What are the differences between the two possible streams of education that you can take to reach this certification level?**

7. Which of these two streams might you consider most if you were to continue your education beyond the Foundation level? What might prove to be more beneficial to you in your organization?

8. Select the Back button in your browser, and follow the links to the ITIL Master Level. According to the site, how is this level reached? Why might a person seek this level of qualification?

9. Close your web browser when you are through exploring the website.

TOPIC B

The Service Lifecycle

You have already become familiar with some of ITIL's core terminology. The other basic set of ITIL terminology refers to the Service Lifecycle, which also provides the titles of the core books in ITIL. In this topic, you will describe the basics of the Service Lifecycle.

To become an ITIL Foundation certified professional, and to apply ITIL methods to your own business to successfully manage IT services, you need to know the Service Lifecycle inside and out. This topic will give you the baseline from which you can build that mastery. All aspects of the Service Lifecycle are concerned with the value of IT services to the customer.

Overview of the Five ITIL Core Publications

Every IT service has a timeline for its useful life, from conception to obsolescence. These stages of development are known as the Service Lifecycle in ITIL. The Service Lifecycle consists of five areas:

- Service Strategy.
- Service Design.
- Service Transition.
- Service Operation.
- Continual Service Improvement.

Each area or stage of the Service Lifecycle is its own core book in ITIL and covers a variety of crucial elements in service management. Although there are area-specific events, there are some broader ideas that appear regardless of the lifecycle area: what is emphasized and of concern; how the area can be best managed and measured; who participates and in what capacity; and how to learn from and improve the service at every stage.

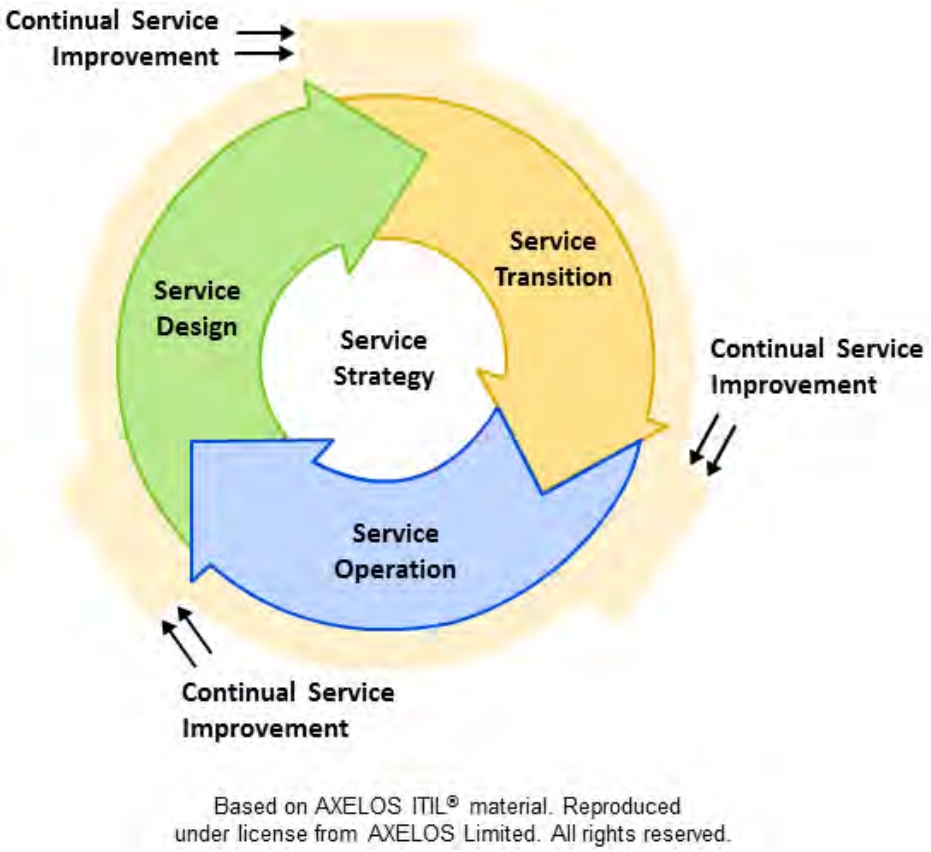

Figure 1-7: The Service Lifecycle.

Service Strategy

Service Strategy is at the center of the IT Service Lifecycle and concerns the overall strategic planning of the IT service. This includes any financial planning and any definition of value that the service is intended to provide to the customer.

Service Strategy provides the following business value:

- More alignment to the business needs and demands.
- Demonstrates return on investment.
- Better understanding of business and IT capabilities and resources.

Figure 1-8: Service Strategy within the Service Lifecycle.

Service Strategy In a Restructuring Effort

Vicki is an analyst for Hexa Web Hosting, which has just announced a large restructuring effort to revamp its hosting plans. She is currently figuring out what the wage costs would be if the UNIX hosting packages become twice as popular, three times as popular, or four times as popular. Determining and managing labor costs are part of Service Strategy.

Service Design

Service Design concerns the design and development of services, service management processes, and any other related processes. The need for Service Design typically comes from a customer, internal or external, who has requested new or changed services.

Service Design provides the following business value:

- Reduced total cost of ownership.
- Improved service quality.
- Smoother service implementations.
- Increased service alignment.
- More effective service performance.

Figure 1-9: Service Design within the Service Lifecycle.

Analyzing Hard Costs and Soft Costs in Service Design

Gareth is an analyst for Rudison Technologies, which sells and supports human resources software to help keep track of employee performance. He is currently working on a project to help clients resolve errors when they call the company's help line, and he is currently attempting to quantify the costs of having the call center go offline, which has happened in the past. This analysis has both hard costs, such as money lost from unsatisfied customers taking their business to a competitor, and soft costs, such as a public relations hit. The risk of these costs should be carefully studied while the help line service is being designed, or redesigned, in this case. Gareth is designing a Service Desk with the appropriate amount of availability for the customer to perceive value in the service.

Service Requirements

A *service requirement* is a customer requirement for an aspect of a service. These requirements are considered holistically in Service Design, which helps ensure that the services delivered meet the functionality and quality of service expected by customers in all areas. Some of the service requirements might include:

- The scalability of the service to meet future requirements.
- The business processes and business units supported by the service.
- The IT service and the agreed-upon business functionality and requirements.
- The service itself and its Service Level Requirement (SLR) or Service Level Agreement (SLA).
- The technology components used to deploy and deliver the service, including the infrastructure, environment, data, and applications.
- The internally supported services and components and any associated Operational Level Agreements (OLAs).
- Externally supported services and components and their associated contracts, which might have their own related agreements.

- The performance measurements and required metrics.
- Any required security levels.

Virus Detection Requirements

Evan is working on virus detection software, and some potential customers have shared their requirements. The following are some of these requirements:

- It must work with multiple operating systems.
- It must scan web pages before they load; if a threat is detected, a firewall rule should automatically be created.
- Virus database updates should come at least twice a week to stay on top of new threats.

Measurement Design

One of the most important lessons of ITIL is that all processes need to be measurable in order to be studied and improved upon. This is where *measurement design* comes in. It is a way to create metrics that measure the capability and performance of processes associated with a lifecycle stage. This might include efficiency, whether certain milestones were reached, accuracy, and compliance. What you measure differs with each lifecycle stage and also in the processes within each stage.

Measurement Design in Action

As a Project Manager, Denise is responsible for maintaining a measurable record of how much progress has been made toward the current milestone of delivering an IT service: a software application customers will use to create maps and directions directly from email signature files. With a timeline already in place, a quick and easy way to measure progress is to gauge the current status of the project against its individual milestones, such as the delivery dates for internal testing, the amount above or below budget, and more.

Service Transition

Service Transition is the stage in the Service Lifecycle that utilizes various processes, systems, and functions in order to build, test, and deploy the service before it moves into Service Operation, which is the first time a customer will see it or use it.

Service Transition provides the following business value:

- Improved deployment of services.
- More efficiency in handling changes.
- Less disruption of services.
- Increased accountability for resources and assets.

Figure 1-10: Service Transition within the Service Lifecycle.

Service Transition in Practice

Francis' role in Service Transition of his company's current project involves managing the movement from the 0.9 beta version of the software to the major release of version 1.0. All of his efforts are going to go into creating the highly detailed strategy to get from 0.9 to 1.0. This will include assigning roles to the team members, all necessary internal and external testing, establishing performance baselines, defining what will go into the final release as a service, and more.

Service Operation

Service Operation is where the service is first made available to customers and then continually delivered and maintained. Service Operation has its own processes and functions that are required for the service to be provided per the design at the agreed-upon service level.

Service Operation provides the following business value:

- Improved service delivery.
- Increased operational efficiency.
- Reduction in unplanned business and IT costs and resources usage.
- Reduction in service failures.
- Increased access to standard services.

Figure 1-11: Service Operation within the Service Lifecycle.

Service Operation in Practice

Robert is a Project Manager for Rudison Technologies. Version 1.0 of their newest software application has been released, and they have already heard from a customer who discovered what they think is a defect. Robert's job now is to define the priority of this issue: it might be that, even with the risk of other clients using the same software, this error is unlikely to appear again. In that case, the urgency is quite low, and this incident does not threaten to have much impact on Rudison's business.

Continual Service Improvement

Continual Service Improvement (CSI) is a larger, all-encompassing area of the IT Service Lifecycle, and it is an area that can be applied at any point in the lifecycle. Measurement is vitally important to CSI, as it is extremely difficult to improve processes if it is not possible to identify their strengths and weaknesses. Continual Service Improvement is just that: continual. The work here is iterative. Improvements can always be made, and stages can be made more profitable.

Continual Service Improvement provides the following business value:

- Better ability to handle and initiate improvements.
- Increased alignment between IT and business needs.
- Enhanced awareness of service inefficiencies and ineffectiveness.

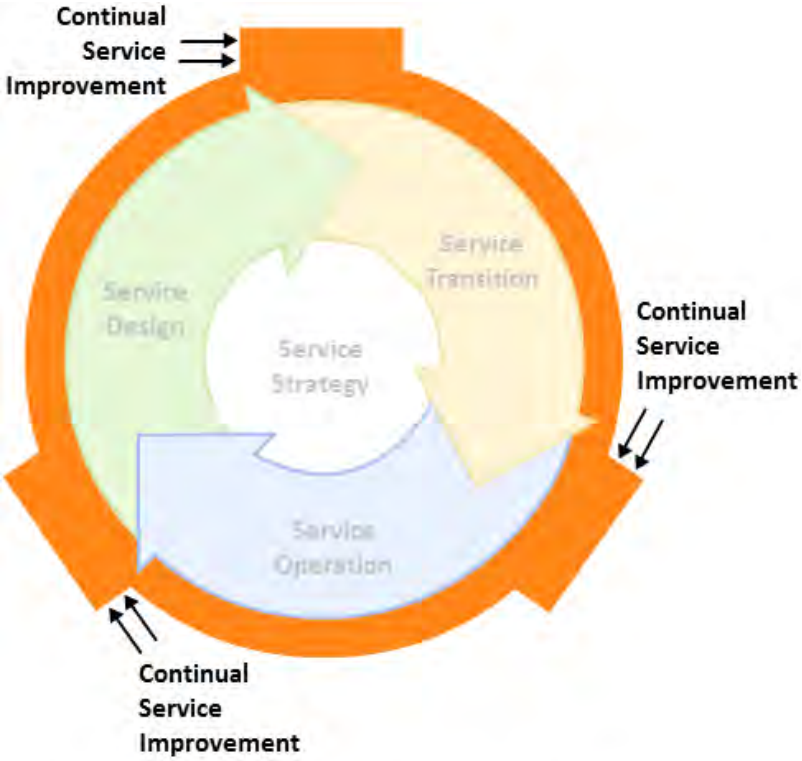

Figure 1-12: Continual Service Improvement in the Service Lifecycle.

CSI and a Baseline

Rudison Technologies is a company with a mix of both onsite and offsite employees. The offsite employees all connect to the company network via a Virtual Private Network (VPN). Recently, the company has decided it wants to improve its response time for those service requests originating from offsite employees. Greg, one of the IT managers, decides that he needs a baseline to establish what the current response time is before he can even start planning about how to improve it.

ACTIVITY 1-3

Discussing the Stages of the Service Lifecycle

Scenario

In this activity, you will discuss the stages of the Service Lifecycle.

---

1. **The lifecycle stage concerned with building and testing a service before it is delivered to customers is:**
   - ○ Service Design
   - ○ Service Operation
   - ✔ Service Transition
   - ○ Continual Service Improvement

2. **The lifecycle stage concerned with financial planning is:**
   - ○ Service Design
   - ✔ Service Strategy
   - ○ Service Operation
   - ○ Service Planning

3. **Which is a larger, all-encompassing stage in the IT Service Lifecycle and also a stage that can be applied at any point in the lifecycle?**
   - ○ Service Transition
   - ○ Service Measurement
   - ○ Service Design
   - ✔ Continual Service Improvement

4. **Which lifecycle stage consists of processes and functions that are required for the service to be provided at the agreed-upon service level?**
   - ○ Service Design
   - ✔ Service Operation
   - ○ Service Transition
   - ○ Service Strategy

5. **Which service lifecycle stage ensures that measurement methods will provide the required metrics for new or changed services?**
   - ○ Service strategy
   - ✔ Service design
   - ○ Service transition
   - ○ Service operation

Summary

In this lesson, you described the history, the certification paths, and the most basic terminology of ITIL. The information you learned in this lesson will help you understand what ITIL is, what it does, what it is used for, and how it fits into the larger world of IT service delivery.

Although you might not have used ITIL's exact terminology for the lifecycle stages, you have experienced the processes within those areas in your workplace. Which lifecycle stage do you have the most experience participating in?

What are some IT service best practices that exist in your workplace, and where did they come from?

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

2 Service Strategy

Lesson Time: 1 hour, 45 minutes

Lesson Introduction

IT services are never created and implemented in a vacuum; there are always financial considerations and limitations on what can or cannot be done. In this lesson, you will examine the critical core of the IT Service Lifecycle to guide you in the planning, design, transition, operation, and improvement of any IT service, as well as ensuring an IT service is part of an overall profitable business strategy.

Projects do not have unlimited budgets or open-ended development timelines. You are often required to make the best use of the limited resources that are available to you, such as time, money, and equipment. Service Strategy addresses these concerns early in the IT Services Lifecycle. The processes help you make smart decisions about which services to offer, at what level to offer them, and how to make the most efficient use of available resources while satisfying the demands of your customers.

Lesson Objectives

In this lesson, you will describe Service Strategy in the IT Service Lifecycle. You will:

- List the basic concepts of Service Strategy.
- Describe the Financial Management process.
- Describe the Service Portfolio Management process.
- Describe the Demand Management process.
- Discuss Business Relationship Management process.

TOPIC A

Basic Concepts of Service Strategy

Service Strategy contains a number of processes that help managers make tough decisions about how to make the most effective use of limited resources in order to satisfy the current and future requirements of the customer. Successful completion of the tasks at this stage of the lifecycle requires that you have a solid grasp of the general concepts of Service Strategy. This topic will provide you with a basic understanding of the concepts and terms that are used throughout the lifecycle.

Note: This lesson contains some expanded information about Service Strategy that is not directly addressed in the current version of the ITIL Foundation Syllabus, but is provided here as additional background for you. Please refer to Appendix A for a mapping of the course content to the ITIL Foundation Certificate Syllabus to identify the specific items that may be addressed on the examination.

Service Strategy

In terms of Service Strategy, a *service asset* includes anything that can be used to contribute to successfully delivering a service to a customer. An *asset* may be in the form of either a resource or a capability. A *resource* is typically a physical asset of an organization and is composed of the personnel, applications, infrastructure, financial capital, or anything else that might help to deliver an IT service. The term *capability* refers to the ability of the organization to provide the service. This includes the management structure, processes, knowledge, and people. Think of resources as the tools available for the organization to deliver a service, and the capabilities as the skilled knowledge of how to use these tools effectively.

Note: To learn more, check out the LearnTO **Identify Ways to Use Service Strategy in Your Organization** presentation from the **LearnTO** tile on the CHOICE Course screen.

Service Strategy and Value Creation

The intent of service strategy is the most optimal use of resources and organizational capabilities to create value for customers. This leads to various processes and activities assessing customer wants and needs, relative levels of demand, assessing cost, value, and risk, and making strategic decisions about which services to offer, and to which customers. Businesses desire to create certain outcomes and establish certain work processes to deliver those outcomes. IT creates value when its services enable them to perform their work more efficiently and more effectively as a result of leveraging the IT service.

Purpose, Objectives, and Scope of Service Strategy

ITIL describes the purpose, objectives, and scope of Service Strategy as shown in the following table.

Category	*Description*
Purpose	As the first stage of the IT Service Lifecycle, the purpose of Service Strategy is to define the overall strategic planning for providing IT services to customers, including the perspective, position, plans, and activity patterns that a service provider will need.

Category	Description
Objectives	• Understand the concept of Service Strategy. • Define the services that will be delivered and the customers of those services. • Define value creation and how it is delivered to customers. • Identify opportunities to provide service and how to take advantage of the opportunities. • Define the service provision model that includes defining the funding, delivery, customers, and purpose of services. • Define an organization's capability required to deliver the services. • Document and coordinate how service assets will be used to optimize their performance. • Define the processes and services to be used to deliver the strategy, including the required level of investment and the level of demand. • Understand the business relationship between the customer and the IT service provider.
Scope	The scope of Service Strategy is to define the general principles and processes involved in IT service management. Once defined, these principles and processes can be consistently applied to IT service management by either internal or external service providers in both non-profit and for-profit organizations. ITIL Service Strategy addresses the following aspects: • Define the strategy for service providers to deliver services that result in the desired business outcomes for customers. • Define the strategy for managing the services.

The Service Portfolio

The *service portfolio* of an organization is the complete set of services that are managed by a service provider. It represents all the past, present, and future opportunities and the readiness of the service provider to serve the consumer base.

The service portfolio is typically divided into three categories. The *service catalog* includes all live services that are currently available to customers. The *service pipeline* includes services that are either under consideration or in development and not yet available. The service catalog contains information about two types of IT services: customer-facing services and supporting services. *Retired services* are those that have been phased out of operation and are no longer available.

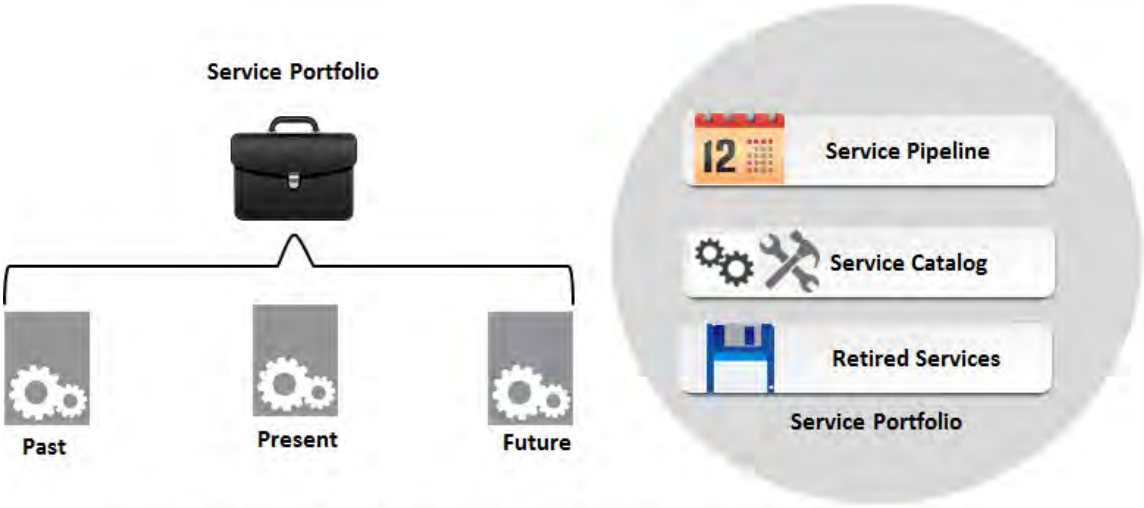

Figure 2–1: The service portfolio.

Current, Future, and Retired Services

The IT department at Rudison Technologies offers technical support for an in-house application that runs on various operating systems. This is included within the department's service catalog. The staff has decided to begin development of a rebuild of this application to support additional users running other specific operating systems, which represents the service pipeline. However, support for the new release of the application will not include operating systems that were released prior to 2009. Support for such operating systems would be considered a retired service.

Components of the Business Case

A *business case* is a formal document that justifies the expense of all or part of an IT service. Although the structure can vary between organizations, a business case typically includes a specific set of information.

- The **introduction** presents the business objectives that the service will address.
- **Methods and assumptions** define the boundaries of the business case, such as the sources of money, the beneficiaries of the service, and time constraints.
- **Business impacts** list the financial and non-financial results of the business case.
- **Risks and contingencies** discuss any potential side effects or alternate results that may occur.
- **Recommendations** describe any specific actions that should be taken, given the conditions.

Risks of Service Strategy

When developing your Service Strategy, it is important not to overlook potential risks. A *risk* is an uncertainty in outcome that could cause the inability to meet objectives. It is generally measured by the likelihood of a threat, the vulnerability of an asset to that threat, and the impact the threat would have.

There are four types of risks that must be considered in Service Strategy.

- **Contract risks** are associated with poorly negotiated agreements that may lead to difficulties in meeting service levels.
- **Design risks** can result from inadequacies in converting requirements to specification of the service.
- **Operational risks** may arise from technical or administrative failure to support the service.

- **Market risks** are those associated with the uncertain and increasingly competitive business environment.

Risk Analysis and Risk Management

Note: Risk analysis and management is not addressed in the current version of the ITIL Foundation Syllabus. However, this content is provided as additional background information and reference for you as an IT professional.

Every organization manages its risk, but not always in a way that is visible, repeatable, and consistently applied to support decision making. This is accomplished through two distinct phases: risk analysis and risk management.

Risk analysis requires gathering information about exposure to risk, and involves identifying and assessing the value of assets, the levels of threats to the assets, and the vulnerabilities of those assets. *Risk management* involves having processes in place to monitor risks, access to reliable and up-to-date information about risks, the right balance of control in place to deal with those risks, and decision-making processes supported by a framework of risk analysis and evaluation. Risk management also involves the identification, selection, and adoption of countermeasures justified by the identified risks.

Figure 2-2: Risk analysis vs. risk management.

Activities of Service Strategy

Four primary activities are involved in Service Strategy.

Service Strategy Activity	*Be sure to:*
Define the market	• Understand the customers who will use this service and how it will help them meet their business objectives. • Understand any additional opportunities that arise by meeting customer needs.

Service Strategy Activity	*Be sure to:*
Develop the offerings	• Define the market space, which is a set of business outcomes that are facilitated by a service. • Define your services from an outcome-based standpoint. • Populate the service portfolio by establishing the service catalog and service pipeline.
Develop strategic assets	• Use capabilities and resources to support the services. • Use strategic assets to systematically create value for the customer. • Seek ways to improve service potential.
Prepare for execution	• Align policies and objectives with customer needs. • Define Critical Success Factors (CSFs). • Prioritize investments based on customer needs. • Seek ways to differentiate the service provider in the market space.

Four Processes of Service Strategy

Service Strategy is built upon four key processes.

- The **Financial Management** process helps the organization use its monetary resources as efficiently as possible.
- The **Service Portfolio Management** process is used for investment-related decisions regarding services.
- The **Demand Management** process helps an organization align the provisioning of a service with the demand for a service.
- The **Business Relationship Management** process helps bridge the communication gap between IT and business management.

ACTIVITY 2-1

Discussing Basic Concepts of Service Strategy

Scenario

In this activity, you will discuss the basic concepts of Service Strategy.

---

1. **An IT service provider may not be able to support a new service without adding staff. What type of risk does this represent?**
   - ○ Market risk
   - ○ Contract risk
   - ○ Design risk
   - ✓ Operational risk

2. **True or False? Within the service portfolio, services that are either under consideration or in development are part of the service catalog.**
   - ☐ True
   - ☑ False

3. **Any resource or capability that can contribute to the delivery of a service is a:**
   - ○ warranty.
   - ✓ service asset.
   - ○ service portfolio.
   - ○ service catalog.

4. **What is the role of a business case?**

   decision making tool to define the worth

5. **What are some of the pieces of information typically found within a business case?** intro

---

TOPIC B

The Financial Management Process

In the previous topic, you examined some of the basic terms and concepts that will be applied within Service Strategy. With a concrete understanding of these central concepts, you can explore how they are used within the three key processes of the lifecycle. In this topic, you will examine the financial management process.

As organizations face greater pressure to tighten budgets and provide quality services while keeping expenses to a minimum, there must be ways to track and manage costs. By examining the different ways costs are logged and accounted for, you can be in a position to develop a strategy that identifies services that create the most revenue and those that are consuming the most resources.

Financial Management for IT Services

The *financial management* process is an integrated component of service management that helps the organization determine the best possible use of its monetary resources to provide services. The goal of financial management is to provide key decision makers within the organization with meaningful data about the financial aspects of the services offered. If implemented properly, the financial management process can help you determine the impact of services on revenue, the cost of the services offered, and any inefficiencies that may be encountered.

Purpose, Objectives, and Scope of Financial Management for IT Services

Purpose: The purpose of Financial Management for IT Services is to ensure that you have the necessary level of funding for the design, development, and delivery of the services listed in the service strategy. The Financial Management for IT Services acts as a gatekeeper between services and service providers—ensuring that services are not over-committed, balancing the service cost with the quality, and balancing the supply and demand between service provider and customer.

Objectives:

- Define and maintain the financial framework that enables the service provider to identify, manage, and communicate the cost of services.
- Evaluate the financial impact of new or changed strategies for the service provider.
- Secure the necessary funding to provide the services.
- Maintain service and customer assets, including keeping records of all associated costs. This will involve the Service Asset and Configuration Management and Knowledge Management.
- Use basic financial accounting to balance income and expenses as prescribed by the organization's financial policies.
- Manage the expenditures for provided services and provide expenditure reports to stakeholders.
- Execute the organization's financial policies and practices for services.
- Ensure accounting practices are applied to the creation, delivery, and support of services.
- Provide financial forecasts for keeping service commitments and ensuring compliance with regulations.
- Define a framework for recovering the cost of service provisions from customers.

Scope: While similar in nature to general financial management, Financial Management for IT Services is a specialized area of financial management that must be knowledgeable of the organization's standard financial policies and practices as well as those used in IT service management. The IT financial policies and practices must be consistent with the policies and practices of the other areas of the organization, as is required by laws and regulations.

Accounting

Accounting is the method by which an organization tracks and records investments and expenditures in order to provide services. Financial data, including all capital and operational expenses, fixed and variable costs, and direct and indirect costs, are compiled in an effort to understand where money is being spent while provisioning services. These figures are then measured against a budget in an effort to determine if the expenses associated with providing the service are within acceptable bounds.

Tracking Expenses of Equipment

Rudison Technologies has recently invested in high-end, powerful servers to provide sufficient computing power for its users. Financial analysts at Rudison Technologies have gathered accounting information regarding the costs of acquiring, powering, and maintaining the new equipment. The figures indicate that between the increased power usage and underutilization of the new equipment, the company has exceeded its budget for providing these application services. Managers and technicians must determine which changes need to be made to bring costs to an acceptable level.

Budgeting

In the financial management process, *budgeting* includes the activities associated with predicting and controlling expenditures. It provides a framework that defines the acceptable permitted amount of expenses in order to provide a service. Budgeting typically begins with a negotiation phase, after which future expenses are planned out. Current short-term expenses may also be monitored and adjusted in a day-to-day budget.

Meeting a Budget Reduction

Fuller & Ackerman Publishing has launched an initiative to reduce its internal spending on IT costs by five percent in the upcoming fiscal year. The IT staff believes that the usage of blade servers that fit into a single enclosure can help reduce power consumption, which will help the company meet its reduced budget for the upcoming year.

Charging

In financial management, one possible model for replenishing the costs of providing an IT service is *charging*. A *chargeback* is an internal payment model in which an IT department associates a cost with one or more specific services it offers and bills departments for these services when they are used. *Invoicing* is the charging method used to obtain payment from external customers. This allows the IT department to prove its value to the business and provide evidence of what these specific service demands ultimately cost the business. Chargebacks have the ability to contour demand by allowing users to better understand the financial impact of their decision to utilize a service.

Service Desk Chargeback

Hexa Web Hosting has decided to implement a second Service Desk within their organization of 30,000 employees. Unlike the budgeted free support available from the first Service Desk, the premier support Service Desk charges departments a fixed fee of $50 for each call placed in exchange for the expedited handling of incidents. This scenario allows department managers to evaluate incidents on a case-by-case basis to determine if an incident merits a chargeback for a faster turnaround time. Additionally, the demand upon the premier support Service Desk automatically replenishes the costs of providing that service.

ACTIVITY 2-2

Discussing the Financial Management Process

Scenario

In this activity, you will discuss the Financial Management process.

---

1. **The department of an organization is charged any time it uses a specific service from an IT service provider. What does this describe?**
   - ○ Rolling plan
   - ✓ Chargeback
   - ○ Indirect costs
   - ○ Service level agreement

2. **What provides a framework that defines the acceptable permitted amount of expenses in order to provide a service?**
   - ○ Financing
   - ○ Accounting
   - ✓ Budgeting
   - ○ Allocating

3. **True or False? Allocating monetary values to all the assets and resources used in order to deliver and manage a service communicates an IT cost of a service to the business.**
   - ✓ ☐ True
   - ☐ False

TOPIC C

The Service Portfolio Management Process

The previous topic exposed you to the principles of the financial management component of your strategy. Now that you have an understanding of the accounting, budgeting, and cost management aspects of providing a service, you can determine which services are likely to create the most value for customers, both now and as they execute their business strategies for the future.

It is important for any service provider to understand its resource constraints. There must be a system in place to select the appropriate services that will provide the greatest benefit to the organization. The Service Portfolio Management process provides you with a means to identify and prioritize the services that are best aligned with the organization's strengths, while also helping you identify any services that should be phased out or replaced.

Service Portfolio Management

The purpose of a service portfolio is to provide an overview of the types of services offered, so that they may be analyzed for investment or resource allocation purposes. *Service Portfolio Management (SPM)* is a process used to make investment-related decisions across the enterprise. This practice helps service portfolio managers identify the strengths and weaknesses of the organization in providing specific services, the business requirements, and any associated costs.

High Level Business Decisions

Senior level managers at Rudison Technologies meet on a regular basis to make sound decisions regarding the business relationship between the service provider and its customers. SPM helps these managers answer the why questions when it comes to services. Some questions that were brought up in previous meetings included:

- Why should desktop support be outsourced?
- Why is this unprofitable service still in operation?
- Why should we introduce a new virtual PC service?

The senior managers are careful to keep this a business conversation, and not a technical conversation. Discussions about technical support will be addressed later to meet the higher-level objectives discussed here.

Purpose, Objectives, and Scope of Service Portfolio Management

Purpose: The purpose of Service Portfolio Management is to review the services provided by the service provider and ensure that you have the right combination of services to meet your customer's desired business outcomes. In addition, investment in IT services is tracked to verify that the appropriate returns on investment are achieved.

Objectives:

- Provide a process for analyzing services and determining which ones to provide based on potential benefits and acceptable levels of risk.
- Maintain the defined portfolio of services that details the business needs that are met and the business outcomes supporting the services.
- Provide a mechanism for evaluating the services against the service strategy and for responding to internal and external environmental changes.
- Maintain control of which services are offered, who should receive the services, the conditions of the offering, and the level of investment.

- Track the investment on services during the entire lifecycle so the organization can evaluate the investments against the strategy.
- Analyze the viability of services and determine when they should be retired.

Scope: The scope of Service Portfolio Management is all-inclusive—all future planned services, all currently delivered services, and all retired services. SPM compares the investment spent on services against the business value they provide.

Guidelines for Developing SPM Objectives

A key objective of the SPM process is to be able to provide a means of comparing a specific provider's service competitiveness across the industry. When done properly, this process can help management answer the following questions:

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

Service Portfolio Management Phases

The Service Portfolio Management (SPM) process is defined by four key phases.

SPM Process Phase	*Description*
1. *Define*	The start of the SPM process is a complete inventory of all services and proposed services. Each of these identified services should include a business case that states the purpose of the service and justifies its role within the business.
2. *Assess*	The intent of this phase is to maximize the value of the service portfolio through a careful analysis of each service. Services are valued, prioritized, and balanced according to demand. The analysis should allow management to identify which services are necessary to: • Run the business. • Grow the business. • Transform the business.
3. *Approve*	This phase is where decisions are made about each individual service. Along with the approval of a service, there is the explicit declaration of the resources that are required to make the service a reality. Decisions at this point of the process will fall into the categories of the six Rs: • Retain—Services that are largely self-contained and are well-aligned with the organization's strategy. • Replace—Services that are unclear and have overlapping business functionalities. • Rationalize—Services that require the consolidation of software versions or other system platforms that provide similar functions. • Refactor—Services that require only core functionalities, in which common services are used to provide the remainder. • Renew—Services that are functionally fit, but fail technical fitness. • Retire—Services that do not meet the minimum requirements for functional and technical fitness.

SPM Process Phase	Description
4. *Charter*	The final phase is chartering an approved portfolio of services with the customer for the next agreed-upon period of time. An action plan and budget plan are formally documented, so that all branches across the organization understand what resources will be required to provide and maintain the collection of services in the service portfolio.

ACTIVITY 2-3

Discussing the Service Portfolio Management Process

Scenario

In this activity, you will discuss the Service Portfolio Management process.

---

1. **What is the key purpose of the SPM process?**
   - ○ To provide an overview of available services.
   - ○ To determine cost of services.
   - ○ To identify how much a service is consumed in normal business activity.
   - ✓ To make enterprise-level investment decisions.

2. **What are some of the high-level questions that the SPM process helps to answer?**

   why do you want to buy the service? what are our charging models?

3. **Rudison Technologies is deciding whether to retain, replace, or retire certain services. What SPM process phase are they employing?**
   - ○ Define
   - ○ Analyze
   - ✓ Approve
   - ○ Charter

TOPIC D

The Demand Management Process

In the last topic, you used the four methods of the SPM process to identify and prioritize the services that are best aligned with the strengths of your customer's organization. Once these services are identified, you must be able to match the level of provision for these services to the demand for them. In this topic, you will examine the demand management process.

Knowing which services are the best fit for your business can help maximize the value of such services, as well as profit. However, you must be able to determine how your valuable and limited resources should be allocated across your service portfolio. The demand management process can help you match your capacity to anticipated levels of demand, so that your organization can most effectively use its resources.

Demand Management

Demand management is an essential process of Service Strategy that aims to establish a balance between the offering of a service and the demand for that service. This process involves studying how much a service is consumed in typical business activity and being prepared to supply the necessary demand without overspending on excess capacity. Effective demand management can help an organization accurately predict the level of product or service purchases over a specific period of time. This information is critical for capacity planning, in which the organization prepares resources in anticipation of forecasted demands.

Note: The Demand Management Process is not addressed in the current version of the ITIL Foundation Syllabus, but is provided here because it's important to understand changing demand patterns so you can adjust strategy as needed.

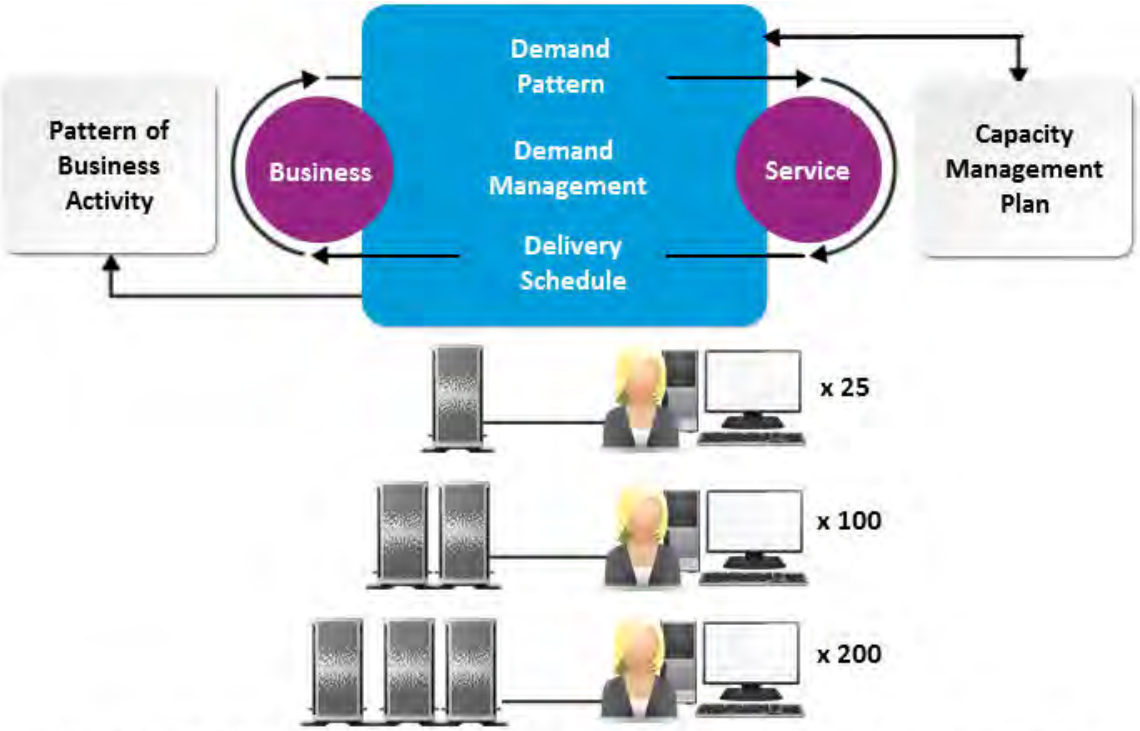

Figure 2-3: Demand management.

Accommodating an Increase in Demand

The IT department at Develetech integrates cellular services with email, calendaring, and messaging. The company has decided to purchase an Enterprise Server in order to bring more control of specific PDA services in-house. Develetech must now perform appropriate application sizing based on the number of the company's PDA users, both now and in the projected future. Since the Enterprise service is now insourced, the company must deliver and support the service at agreed-upon levels.

Challenges of Demand Management

Demand management is challenging because a service is not a commodity that can be produced and stored. There must first be a demand for the service before it can be provided, and this can be quite difficult to accurately predict. Overestimating the demand for a service will result in higher costs that do not generate revenue and resources that could have been used elsewhere. Underestimating the demand can result in a missed opportunity for the business.

Another challenge is that demand is not always even across intervals of time. There are often seasonal patterns in demand, which may be the result of market conditions, climate, the time of year, or the nature of the customer's business.

Patterns of Business Activity

Patterns of Business Activity (PBA) is the term used to describe the patterns in business processes, which provide an indication of the level of demand for a particular service. PBA relies on the careful analysis of a customer's business as the primary source of information about the anticipated demand for a service. For instance, if the demand for services offered by a service provider tends to rise when a specific customer is generating a lot of business, then a projected slowdown at that company would suggest a decrease in the demand for these services in the near future.

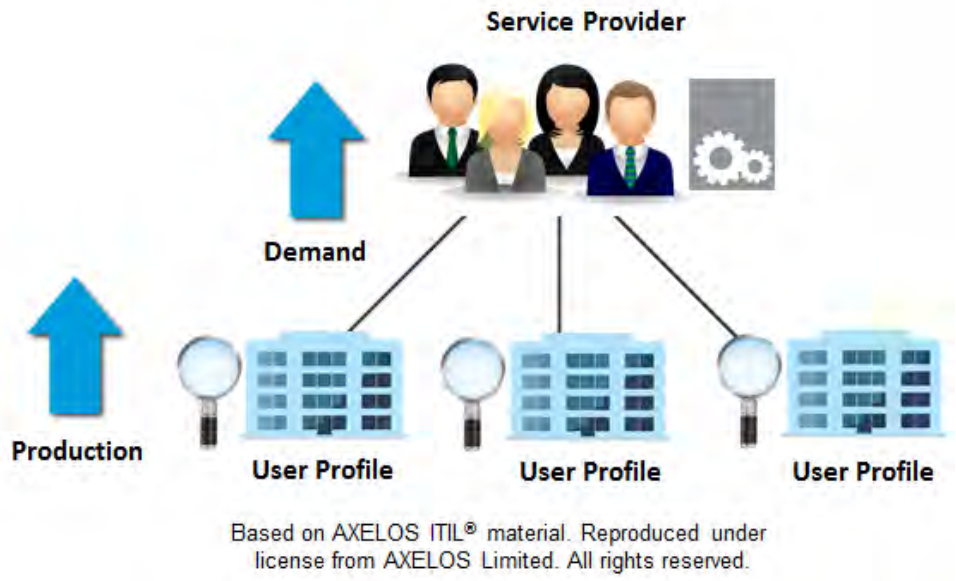

Figure 2-4: PBA.

User Profiles

User profiles are essentially PBAs that are broken down by roles and responsibilities. Each user profile includes one or more specific PBAs. The accumulation of individual patterns of activity described in user profiles may be rolled up into aggregate business process-level PBAs.

Making Early Decisions Count

Service Strategy is a particularly crucial stage of the IT Lifecycle, as many of the decisions made at this stage directly impact all remaining stages. A successful Service Operation, in which the service is live and used by customers, relies on an efficient Service Transition. Service Transition represents the bridge between Service Operation and Service Design, which is why it is essential to consider all technical and business aspects of the service. A comprehensive design is the output of a successful Service Strategy. Taking time to carefully consider customer needs, market conditions, financial objectives, and demand levels for a service will ensure a solid foundation for the rest of the lifecycle.

ACTIVITY 2-4

Discussing the Demand Management Process

Scenario

In this activity, you will discuss the Demand Management process.

---

1. **Which of the following is not considered a challenge of demand management?**
   - ○ A service cannot be produced ahead of time and stored for later.
   - ✓ There is no process that lets you predict future levels of demand.
   - ○ Demand is not always constant over time.
   - ○ Over-provisioning a service results in wasted resources.

2. **What is the overall goal of demand management?**
   - ○ To determine which services in the service catalog will be in the highest demand over a period of time.
   - ○ To determine which services in the pipeline are worth future investment.
   - ○ To determine whether or not the provisional costs of the service outweigh its service value potential.
   - ✓ To determine a balance between the offering of a service and the demand for that service.

3. **What is a Pattern of Business Activity? Why is it important to monitor?**

TOPIC E

The Business Relationship Management Process

In the last topic, you matched the level of provision for services to the demand for them, which is an important component in ensuring that your organization's strengths are aligned with the overall Service Strategy. Another component is to ensure that communication lines are as open as possible between IT and the business, which requires certain skills and a certain awareness. In this topic, you will discuss Business Relationship Management.

Businesses sometimes spend a lot of time and resources designing and streamlining services only to experience difficulty when they realize that there is an obstacle between what the business strategy wishes and what their IT can design or support. This is a communication problem, and there are risks involved when there is no clear liaison between IT and the business. Just as a bilingual individual can serve as a translator between two people who otherwise wouldn't be able to communicate clearly, properly understanding Business Relationship Management can position someone who can communicate both business and IT concerns in a vitally important role.

Business Relationship Management

The alignment between the business and IT is critical to ensure that the services offered and supported are ones desired and benefit the business, while also being feasible and strategic for IT. Without dialog and constant communication between the business representatives and IT, two risks increase: the risk of misalignment and the risk of not delivering value. Building a rapport and having a better understanding of each other's needs takes time and effort. This is the major objective of the *business relationship management* process.

Purpose, Objectives, and Scope of Business Relationship Management

Purpose: The purpose of Business Relationship Management has two parts and, as the name implies, both are concerned with the relationship between the service provider and the customer. Overall, the service provider needs to clearly understand the customer's business requirements to provide services that meet those stated requirements. The success of BRM is measured by the customer's satisfaction.

- Establish and maintain a relationship between the service provider and the customer to ensure that the needs of both the business and the customer are being met.
- Identify the customer needs and make sure that the service provider has the capability to meet those needs at the current time and in the future.

Objectives:

- Recognize the customer's perspective of service so that the service provider can prioritize services and service assets.
- Strive for high levels of customer satisfaction indicating that service is meeting the customer's needs.
- Maintain a relationship that recognizes and understands the customer's business drivers.
- Identify changes in the customer's environment that can have an impact on the type, level, and utilization of services being provided.
- Identify trends in technology that can have an impact on the type, level, and utilization of services being provided.
- Articulate business requirements for new or changed services.
- Ensure that the service provider is meeting the customer's business needs.

- Verify with customers that services and service levels continue to provide value.
- Mediate any conflict over services between business units.
- Create and maintain a formal process for handling customer complaints and escalating issues.

Scope: The scope of Business Relationship Management will depend on the nature of the organization and its culture. To perform business relationship management, other service management processes and functions will be involved. It's important to avoid confusion between BRM and the other service-level management processes. While the other service-level management processes are focused on delivering the services, BRM is focused on the relationship between the customer and service provider, and continually striving for customer satisfaction.

Service providers can be either internal or external to the organization.

- With internal service providers, senior management representatives from the IT department and business units will handle BRM. Some larger organizations might have a dedicated BRM manager while smaller organizations might add BRM to a manager's ongoing responsibilities.
- With external service providers, organizations often assign an account manager who can be dedicated to BRM between the service provider and the customer.

Understanding Business Needs

A primary goal of business relationship management is to understand the business needs, which may be explicit or implicit. It is essential for all needs to be understood and validated in order for the business to deliver optimal value. The Business Relationship Manager role is responsible for collecting these needs, translating the business needs to IT, and serving as a liaison between the business and IT.

ACTIVITY 2-5

Discussing the Business Relationship Management Process

Scenario

In this activity, you will discuss Business Relationship Management.

---

1. **Which one of the following is a primary purpose of business relationship management?**
   - ✓ Understanding the customer's needs and making sure they are met.
   - Supporting the service from an operational perspective.
   - Meeting performance targets as defined in service level agreements.
   - Maximizing the financial value of services.

2. **Without dialog and constant communication between the business representatives and IT, two risks increase. What are those two risks?**
   - The risk of misalignment and the risk of creating waste.
   - ✓ The risk of misalignment and the risk of not delivering value.
   - ✓ The risk of misinformed stakeholders and the risk of failing to create value.

3. **True or False? A major goal of Business Relationship Management is to build rapport between the business and IT.**
   - ☑ True
   - ☐ False

Summary

In this lesson, you explored Service Strategy of the Service Lifecycle. The processes of this stage help you identify the most critical services of your business and develop a budget to make sure that costs for providing these services are monitored and controlled.

Take a moment to conduct a brief Business Impact Analysis of your company. What would be the major financial and operational impacts of a service outage? What measures do you believe can be taken to minimize the impact of the interruption?

Although you may not have used the Service Portfolio Management process as defined by ITIL, you may have had to go through a similar process at your workplace. Have you ever had to select one or a few services from a pool of potential IT services due to resource constraints? What criteria were used to determine the most favorable options?

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

3 Service Design

Lesson Time: 2 hours, 45 minutes

Lesson Introduction

You have previously examined the strategy processes used to identify the most critical services and ensure that they align with your organization's financial plans and objectives. However, whether you are dealing with a completely new service, or making changes to an existing service, a good design is essential. In this lesson, you will describe the basics of Service Design.

Businesses change constantly, particularly in the IT world. In this ever-changing environment, many experienced IT professionals have learned that good planning can lead to services that feature greater uptime, scalable solutions, and proper resource utilization. Service Design of the IT Services Lifecycle can equip you with the skills you need to design not only services, but to design service management, too.

Lesson Objectives

In this lesson, you will describe Service Design in the IT Service Lifecycle. You will:

- Describe basic concepts of Service Design.
- Describe the Design Coordination process.
- Describe the Service Level Management process.
- Describe the Service Catalog Management process.
- Describe the Availability Management process.
- Describe the Capacity Management process.
- Describe the Information Security Management process.
- Describe the IT Service Continuity Management process.
- Describe the Supplier Management process.

TOPIC A

Basic Concepts of Service Design

It has been said that time spent on preparation early on can save time and money down the road. This principle lends itself to the IT Service Lifecycle as well. In this topic, you will describe the basic concepts of Service Design.

Service Design cannot be approached with a cookie-cutter mentality. Different clients may require different services, or different levels of a similar service. To create services that meet or exceed customer expectations, you must be able to understand the aspects of Service Design, as well as the various delivery options. Doing so helps you match your services to your clients in the most efficient manner possible.

Service Design

The Service Design stage of the lifecycle includes the design and development of services, service management processes, governing practices, and other related processes that are required to realize the service provider's strategy and facilitate the introduction of services into supported environments. This stage of the lifecycle typically begins when a customer requests a new or changed service.

Service Design includes the following processes:

- Design coordination
- Service level management
- Service catalog management
- Availability management
- Capacity management
- Information security management
- IT service continuity management
- Supplier management

Purpose, Objectives, and Scope of Service Design

ITIL describes the purpose, objectives, and scope of Service Design as shown in the following table.

Category	*Description*
Purpose	The purpose of Service Design is to deliver a new service or a changed service that provides the desired strategic outcome, including technology advancements and technology-related processes that are needed to ensure value is provided.

Category	*Description*
Objectives	• Design services to satisfy business objectives. • Design services that can be easily and efficiently developed and enhanced within appropriate timescales and costs. • Design efficient and effective processes for the design, transition, operation, and improvement of high-quality IT services. • Identify and manage risks. • 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. • Assist in the development of policies and standards in all areas of design and planning of IT services. • Develop the skills and capability within IT. • Contribute to the improvement of the overall quality of IT service.
Scope	Service Design includes all current service requirements as well as any potential future needs, including future technological developments and advancements that could affect the services being provided. Although all of the following processes are addressed during Service Design, some of their activities are also carried out during other stages of the service lifecycle. The processes involved in Service Design include: • Design coordination • Service level management • Service catalog management • Availability management • Capacity management • Information security management • IT service continuity management • Supplier management

Value of Service Design to the Business

Good Service Design enables a service provider to deliver quality, cost-effective services and ensure that business requirements are being met. The following benefits result from good Service Design practice:

- Reduced Total Cost of Ownership (TCO).
- Improved quality and consistency of service.
- Easier implementation of new or changed services.
- Improved service alignment.
- More effective service performance.
- Improved IT governance.
- More effective service management and IT processes.
- Improved information and decision-making.

Note: To learn more, check out the LearnTO **Identify Ways to Use Service Design in Your Organization** presentation from the **LearnTO** tile on the CHOICE Course screen.

Holistic Approach to Service Design

Service Design spans the design of a completely new or modified service from its concept until it progresses through Service Transition and into operation. During Service Design, it is important that a holistic approach to all aspects of design is adopted. Adding or changing an element of the services offered can have an impact on other services, management systems, tools, and the architecture.

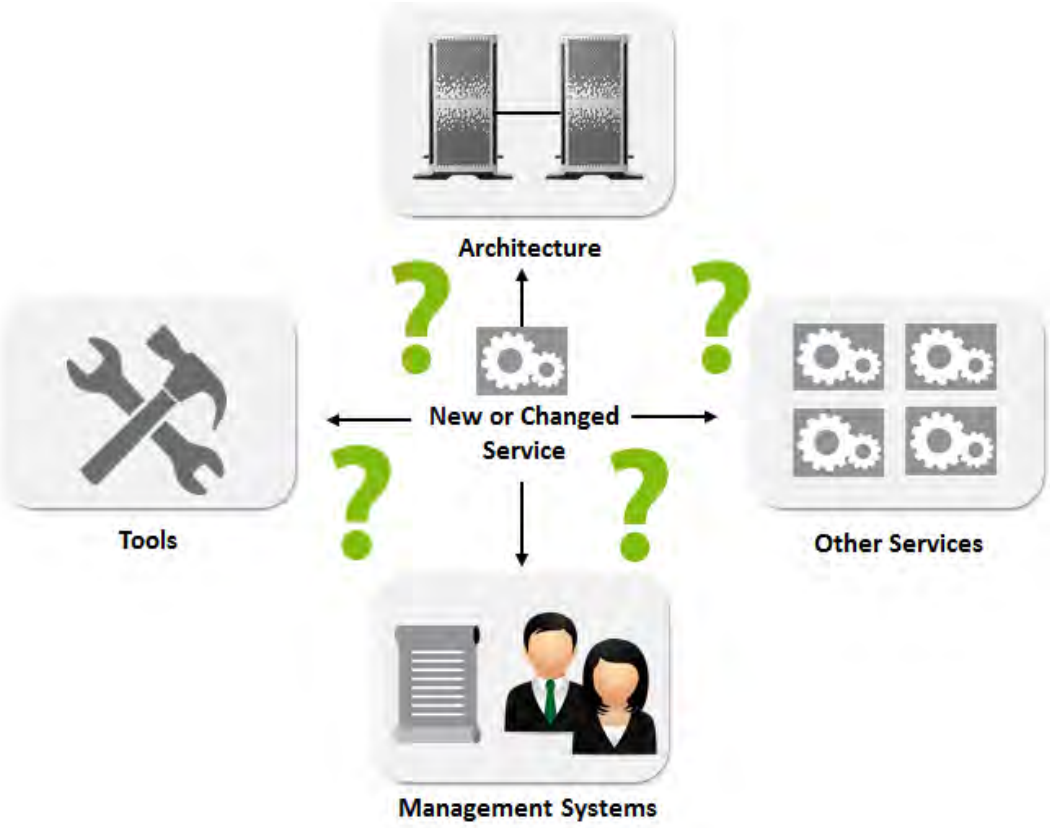

Figure 3-1: Impact of introducing a new or changed service.

Service Design Package

In Service Design within the IT Service Lifecycle, the focus is on any new or changed services that are being rolled out to production. A *Service Design package* is a collection of documents that provide full details of the service, along with expectations and customer requirements throughout the Service Lifecycle. The purpose of the Service Design package is to make sure that both parties are in agreement with their own responsibilities, as well as other design aspects and transition plans.

An Email Service Design Package

A company decides to provide a specific email service to its customers. The design of this service includes technical aspects such as the server and desktop software requirements and configurations, and it also includes support aspects such as the training of the Service Desk staff to handle calls, and a contract with the creator of the email software for major incident support. It also includes delivery aspects such as the funding necessary during the requirements gathering, design, build, test, and deployment. The Service Design package will describe the email service from each stakeholder's vantage point, including Service Strategy, Service Design, Service Transition, Service Operation, Continual Service Improvement, and Service Delivery.

People, Processes, Products, and Partners in Service Design

Effective Service Design takes the business need, demand, financial considerations, timing, and strategy from Service Strategy and Change Management. The four Ps represent the heart of Service Design in the IT Service Management Lifecycle, and play an important role in ensuring that services meet or exceed customer requirements. The processes within Service Design center on these factors:

- **People**: Those within the organization that contribute to the delivery of the service.
- **Processes**: The activities that are designed to accomplish an objective.
- **Products**: The technologies and tools used for delivering a service.
- **Partners**: The manufacturers, suppliers, and vendors that coordinate efforts to provide the service.

ACTIVITY 3-1

Discussing Basic Concepts of Service Design

Scenario

In this activity, you will discuss basic concepts of Service Design.

---

1. **What are the four Ps of Service Design?**
   - ○ People, products, price, partners
   - ○ People, price, processes, place
   - ○ Placement, price, products, promotion
   - ✓ People, processes, products, partners

2. **Two large organizations make an agreement to form a strategic partnership to forge new market opportunities. What type of delivery model does this resemble?**
   - ○ Business process outsourcing
   - ✓ Multi-sourcing
   - ○ Knowledge process outsourcing
   - ○ Co-sourcing

3. **What is the relationship among resources, schedules, and functionality? What happens when a change is made to one of the three?** the other ONE or both will need adjustments IRON TRIANGE -

---

TOPIC B

The Design Coordination Process

Starting with the ITIL 2011 guidance, the process of Design Coordination was formalized. As previously discussed, there are eight processes involved in Service Design. Design Coordination is the process that pulls it all together.

Design Coordination Process

Design Coordination ensures coordination of design activities across projects and changes, and provides assurance that resources can be managed efficiently and effectively to produce and deliver aligned service designs and Service Design Packages. The process works to ensure the adoption of a common set of design practices, supporting activities including defining policies and metrics, planning and coordinating resources and capabilities across the array of different projects and changes, managing risk and issues, and ultimately delivering successful service designs. A successful Design Coordination process delivers value through improving the probability of successful business outcomes for projects and changes, reducing costs, and improving overall agility and quality.

Design Coordination is one of the eight processes of Service Design. It is the process responsible for coordinating all Service Design activities, processes, and resources. Design Coordination ensures the consistent and effective design of new or changed IT services, service management information systems, architectures, technology, processes, information, and metrics. Designing and implementing new or changed services for customers demands a great deal of coordination and project management. Care must be taken not to forget or bypass any of the pieces or processes required.

When designing new services or redesigning existing ones, the IT service provider should ensure a balance between available resources, schedules, and required functionality. As any one of these three elements changes, an adjustment is necessary for at least one of the remaining two. For instance, if an application is being developed internally, and the business later determines that additional functionality will be required, then either more resources will be required, or the schedule will need to change.

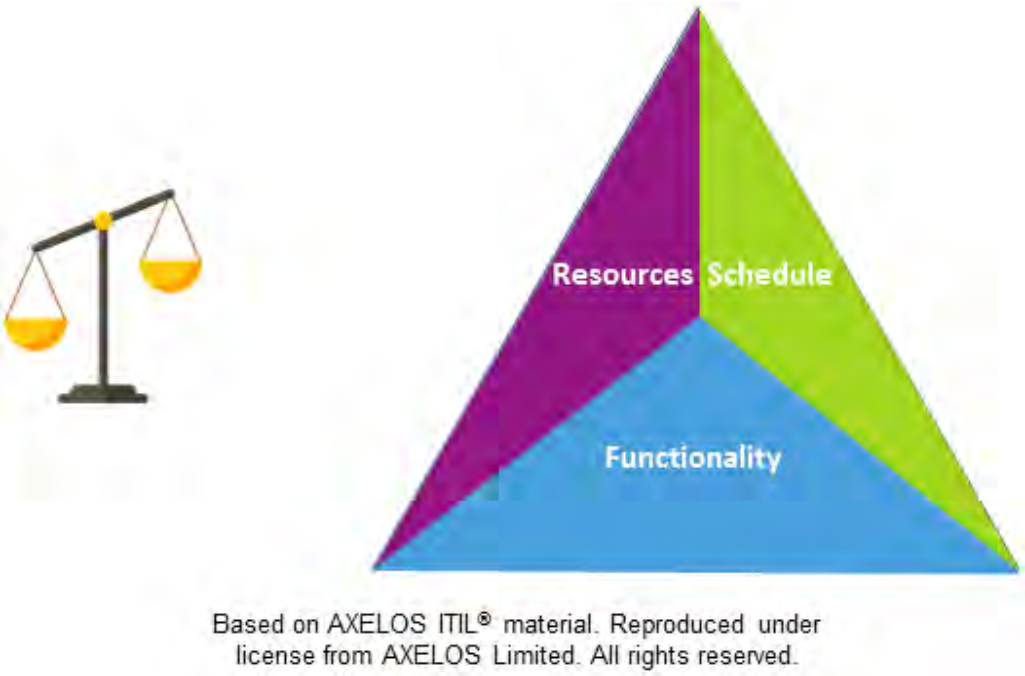

Figure 3-2: Balanced elements of design management.

Purpose, Objectives, and Scope of Design Coordination

Purpose: The purpose of the Design Coordination process is to oversee the many and varied processes and their activities involved in Service Design and provide a single point of control in an effort to avoid or minimize conflict among processes.

Objectives:

- Ensure that all aspects of the design (the architecture, processes, and metrics) will work towards assuring that the service will meet the business requirements.
- Resolve conflicting demands when projects compete for service assets.
- Ensure that resources and the necessary capabilities are in place.
- Ensure that service design packages are created and transmitted to the applicable transition staff.
- Identify what needs to be handed off at the different points in the lifecycle, and the quality requirements that must be met.
- Verify that proposed design conforms to strategic, architectural, governance, and other corporate requirements.
- Adhere to repeatable design practices to provide consistency across services.
- Identify design improvements for future projects.

Scope: Design Coordination is focused in all activities of Service Design processes to ensure consistency. This includes all activities that are involved in the design of new services, changed services, and retired services. All projects, regardless of size, can benefit from Design Coordination. However, those projects that involve a larger number of people, activities, and potential risk of things going wrong, certainly have more to gain from a rigorous Design Coordination process. In the end, the organization will decide on the amount of Design Coordination that will be applied to individual projects.

Design Constraints

It is seldom the case that a solution is not constrained by a number of factors. Some constraints, such as limited financial resources, time, and capabilities, may be obvious. However, there may be other factors, such as pricing constraints, resource constraints, copyrights and trademarks,

contractual obligations, standards and regulations, or constraints posed by values and ethics. Reducing these constraints, whenever possible, allows you to provide greater utility and warranty of the service, which makes the solution more valuable to its users.

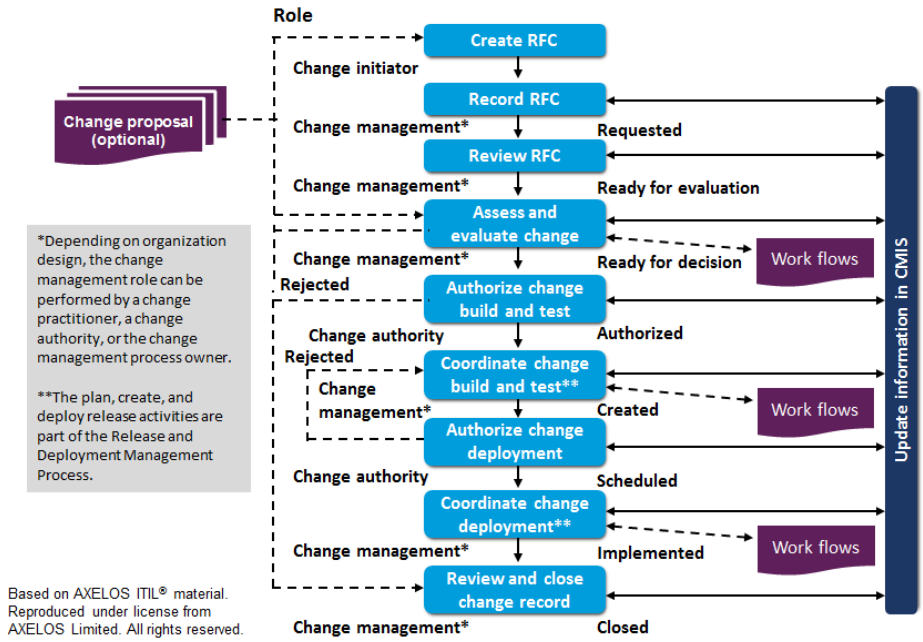

Figure 3–3: Service design architecture.

Five Aspects of Service Design

Service Design is built upon five key aspects.

Service Design Aspect	*Description*
Service solutions for new or changed services	The new or changed service must be aligned to customer business requirements and outcomes. Consideration must be given to the cost, quality, and functionality requirements of the customer. This aspect addresses all needs and the resources that will be needed to meet them. Solutions should be incremental in order to scale to the evolving needs of the customer.
Management information systems and tools	How the service is to be delivered and managed for the customer, including service information, systems, and status. Tools, such as the Service Portfolio, Service Catalog, and Configuration Management System, are used to effectively support and automate systems where possible. This also includes how it will be managed from defining requirements to retirement.
Technology architectures and management architectures	Careful planning is required to construct an IT infrastructure to support the data, applications, and access to everything the client needs. This includes not just hardware and physical architecture, but also any strategies and policies that need to be enforced.
The processes required	This describes the activities involved in delivering the service to the customer. The creation of processes not only allows for quick, efficient, and effective operations, but also creates norms and standards. This lets the organization determine the appropriate outputs for meeting certain quality requirements.

Service Design Aspect	*Description*
Measurement methods and metrics	Throughout the delivery of the service, periodic assessment of the service's quality must be conducted in order to measure the capability and performance of processes associated with a lifecycle stage. This helps the provider understand the most common causes of interruptions or service degradation and ways to improve services accordingly. The four elements that are most commonly investigated are progress, fulfillment, effectiveness, and efficiency.

ACTIVITY 3-2

Discussing the Design Coordination Process

Scenario

In this activity, you will discuss the Design Coordination Process

---

1. **What is the purpose of the Design Coordination process?** define policies and methods maintianing a single point of cordination for all other process within service design

2. **As an IT service provider, which aspects of Service Design should you take into account in any service solution?**

   1. Measurement methods and metrics
   2. Management information systems and tools
   3. Technology and management architectures
   4. The processes required

   Select the correct answer.

   - All of the above
   - 1 and 2 only
   - 2 and 3 only
   - 2, 3, and 4 only

3. **Which one of the following statements is an objective of the design coordination process?**

   - To ensure that agreed-upon service levels are met.
   - To maintain an organization's service catalog.
   - To ensure that all IT components are appropriate for meeting the service level targets.
   - To monitor and improve the performance of service design in the service lifecycle.

TOPIC C

The Service Level Management Process

You have a general understanding of the principles of Service Design. A key process of Service Design is to determine the requirements of your services. In this topic, you will create a foundation for building services that are centered on customer needs.

A skilled carpenter would never build a house without fully understanding the customer needs, then carefully blueprinting designs of the house based on specifications. The requirements must be clearly defined before construction can begin. Building a service is no different. Before you can construct the framework for it, you must first define the service and determine what the expected levels of quality are. The Service Level Management process helps you identify client-driven requirements of your services and ensures that they are being met.

Service Level Management

Service Level Management is the process responsible for negotiating Service Level Agreements (SLAs) and ensuring that the agreed-upon service levels are met. The primary function of Service Level Management is to provide a framework for the delivery of IT services and to set the expectations of the quality of service that is delivered to customers. These requirements are essential in ensuring that both the service provider and the customer have the same definition of an acceptable level of service.

Another function of Service Level Management is to monitor the service for quality and take corrective actions as necessary to close any gaps in performance. Regular reviews are essential in maintaining customer relations and retaining a high level of customer satisfaction. Service Level Management is closely related to Business Relationship Management (BRM), since understanding and having constant communication and relations with the business increases the likelihood of SLAs meeting the needs of the business. BRM addresses the strategic relationship between the parties and the exploration of potential new services, whereas SLM is more tactical, addressing service requirements, targets, and reporting on the service levels committed and delivered to the customer.

Purpose, Objectives, and Scope of Service Level Management

Purpose: The purpose of Service Level Management is to ensure that all current and planned IT services are delivered to the agreed-upon, achievable targets through discussion and negotiation with the customer.

Objectives:

- Define, document, agree, monitor, measure, report, and review the level of IT services to be provided.
- Ensure that the customer and IT have clear expectations of the service to be delivered.
- Develop appropriate targets that are specific and measurable for the IT services.
- Monitor customer satisfaction with the service and identify steps to increase it.
- Report and communicate the performance of the IT service delivery.
- Work with BRM to build a solid business relationship with customers.
- Continually seek cost-effective improvements to the level of service even when targets are being met.

Scope: Service Level Management is concerned with the performance of existing services and future requirements for new or changed services, and managing customers' expectations to ensure that they match the level of service that they perceive they are receiving. The scope of SLM does not include agreeing on the utility of a service.

Service Level Agreements

A *Service Level Agreement (SLA)* is a documented agreement between a service provider and a customer that fully describes the service and specifies the responsibilities of both the provider and the customer. An SLA may take the form of a contract if engaging a third party service provider; however, SLAs with internal IT service providers are not contracts.

An SLA may be applicable to multiple IT services or to multiple customers. The planning, coordinating, monitoring, and reporting of these SLAs is the heart of the Service Level Management process.

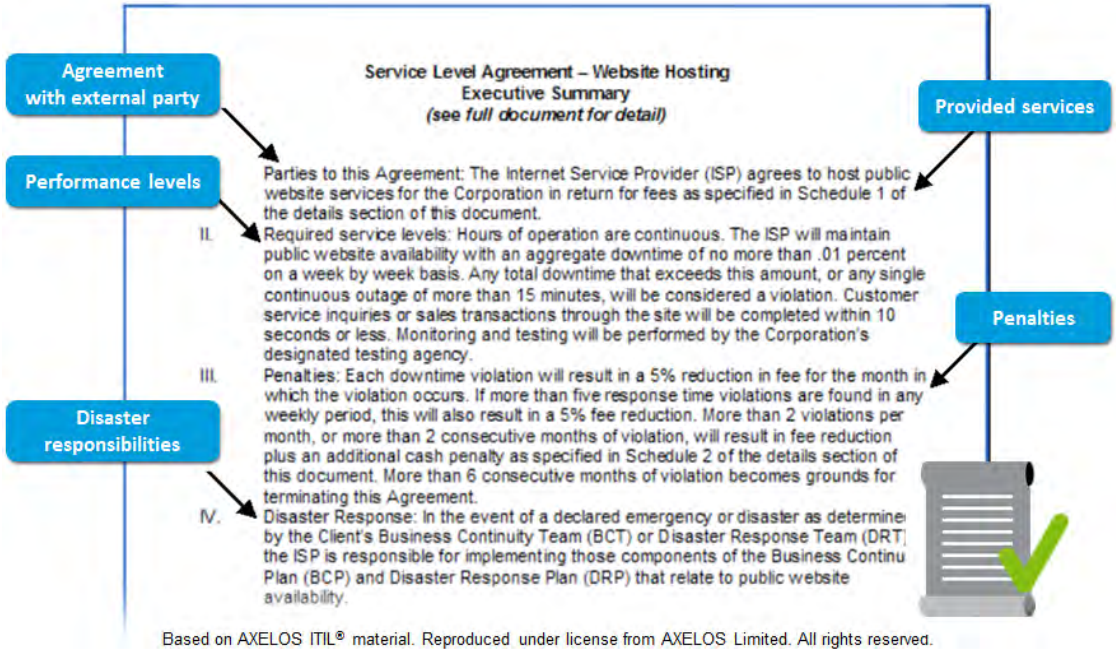

Figure 3-4: An SLA.

Hexa Web Hosting SLAs

Hexa Web Hosting provides hosting for businesses across the country. The company has established a service-based SLA that clearly outlines the functionality of the service, and includes information regarding availability, bandwidth allocation, server response time, and hours of service. The agreement describes the continuity plan, and outlines the customer support process. It also includes customer responsibilities, as far as the type of content allowed and the limitations of usage.

Typical Contents of an SLA

An SLA will typically include information pertaining to:

- The service description.
- Availability and reliability.
- Operation hours.
- Transaction response times.
- Throughput and continuity.
- Charging.
- Service reporting and reviewing.
- Customer responsibilities.

Types of SLAs

An SLA will typically be in one of three different formats.

SLA Type	Description
Service-based SLA	An agreement that covers all aspects of a particular service, no matter who the customer is. A corporate service such as email would be considered a service-based SLA.
Customer-based SLA	An agreement that covers all services required for an individual customer or customer group. Every service required by one specific group within an organization would be outlined in a customer-based SLA. Many customers prefer having all services outlined within a single document.
Multi-level SLA	An agreement that uses a tiered approach to defining the services needed by different groups or different levels of management. This approach is suitable when different levels of an organization require different degrees of service. Generic services made available to the entire enterprise can be captured in a *corporate-level SLA*. All other services can then be documented using service-based or customer-based SLAs.

Service Level Requirements

A *Service Level Requirement (SLR)* is a specific customer requirement for an aspect of the service. It is based on a customer's specific business needs that are necessary for the customer to meet its own objectives. This is a critical part of the Service Level Management negotiation, as different customers will likely have different specific demands for a service. For instance, a delay in a streaming voice application has a greater business impact than the same delay in loading a web page.

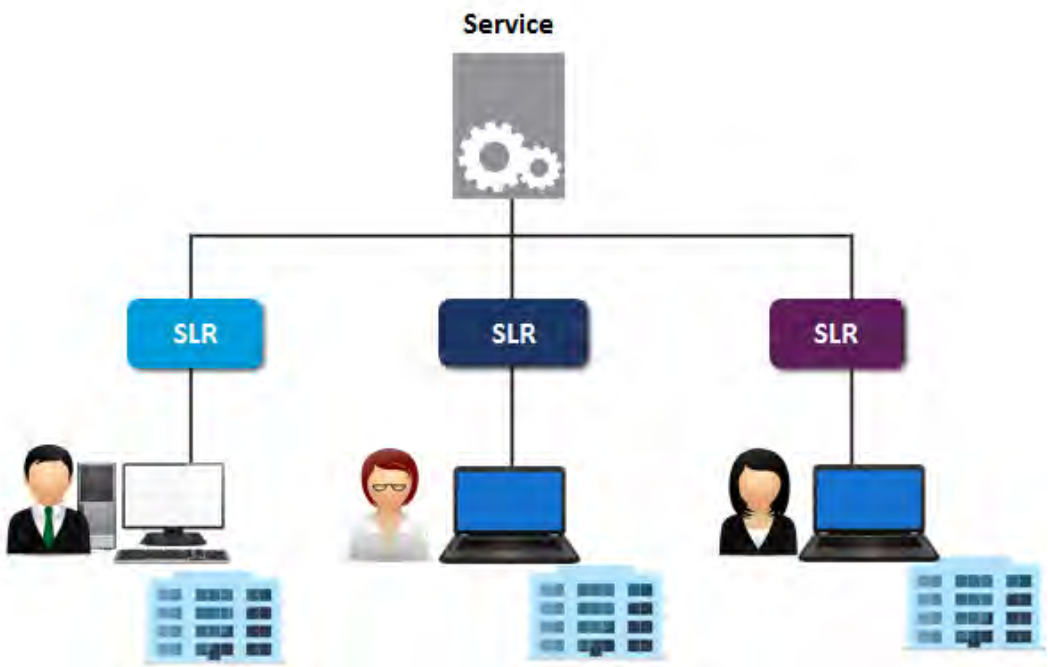

Figure 3–5: Service Level Requirements vary from customer to customer.

The SLAM Chart

A *Service Level Agreement Monitoring (SLAM) chart* is a mechanism that is used to compare the service levels that are defined in the SLA with the actual service levels being provided. A SLAM chart is typically a color-coded matrix that helps identify service aspects that are being met, missed, or nearly missed over a given period of time. This chart is useful for indicating areas of service improvement at a quick glance.

Service Level Management Rating

	Finance	Marketing	Distribution	Admin	Human Resources	Sales
Network Administration	75%	90%	95%	95%	50%	90%
Server Administration	95%	75%	90%	90%	50%	100%
Directory Services Administration	99%	70%	85%	92%	50%	70%
Messaging Administration	87%	70%	85%	88%	50%	66%
Database Administration	87%	75%	85%	90%	50%	99%
Command Center	88%	79%	90%	95%	50%	99%
Storage Management	81%	80%	90%	80%	50%	90%
Workload Management	20%	20%	20%	20%	20%	20%
Output Management	70%	65%	75%	65%	50%	70%
Scheduling Team	93%	79%	90%	90%	50%	90%
Security Administration	85%	78%	85%	88%	50%	75%

>80%
60-80%
<60%

Figure 3-6: A SLAM chart.

RAG Chart

A RAG chart, which stands for "Red Amber Green," is a common type of SLAM chart. In this chart, services are color-coded according to their current, actual levels in relation to their agreed-upon levels as described in the SLA. Services that are performing well beyond expectations appear in green, those that are in danger of falling below expected levels are in amber, and those that have fallen below expected levels are in red.

Service Review

A *service review* is a periodic assessment of the level of service being provided to a customer. It is typically the responsibility of the Service Level Manager to provide regular reviews on the performance of the service. The quality of the service can be adjusted according to past and future trends, and any corrective actions may be taken as well. This type of review typically occurs on a monthly or quarterly basis.

Monitoring Levels of Support

Hexa Web Hosting has an agreement with a particular client that any support issues will be addressed within one hour of the request being logged during normal business hours. At the end of the month, the Service Level Manager receives a report that shows the average response time to the client's support requests for that month. The manager must ensure that this requirement is being met by examining the trend of requests and making any necessary adjustments to accommodate the service.

Underpinning Contracts

An *underpinning contract* is a legally binding agreement between an IT service provider and one of its suppliers. The third party supplier provides goods or services that support delivery of an IT service to a customer. The contract thus underpins the service provider's ability to meet its SLA with the

customer. Like any contract, it clearly outlines the conditions and expectations of each party involved, and typically includes expectations of services, compensation for services, time constraints, and terms of usage. Failure on any side to comply with the conditions in a contract may result in legal action.

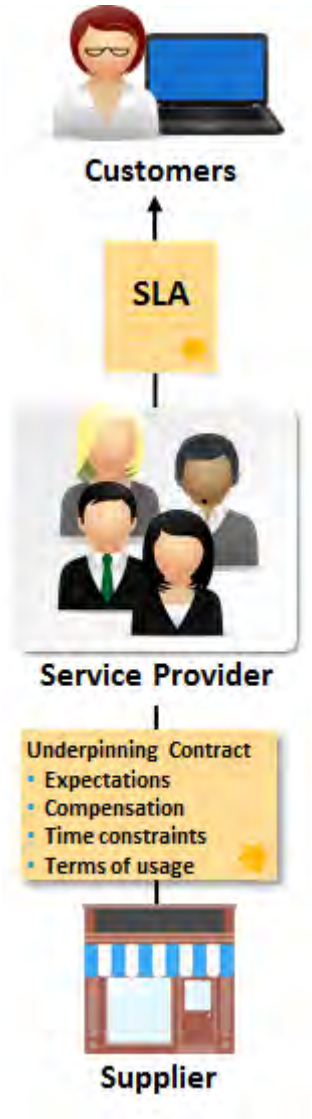

Figure 3-7: Contract between service provider and supplier helps serve the customer.

Server Hosting Contract

In order to provide its remote PC services, Rudison Technologies has signed an underpinning contract with Hexa Web Hosting to procure availability to remote servers. This contract specifies that five servers must be reserved exclusively for Rudison's subscribers at any given time, and these servers must be available 24 hours a day. This contract allows Rudison to guarantee this level of availability to its customers.

Operational Level Agreements

An *Operational Level Agreement (OLA)* is an internal agreement between the functions within the IT service provider. This agreement is non-contractual, and therefore is not legally binding. The goal of the OLA is to establish the level of support required for different functions within the IT service provider to satisfy the SLA targets that were promised to their customers. In essence, an OLA

defines what the IT service provider must do internally in order to allow other areas of the business to serve its clients.

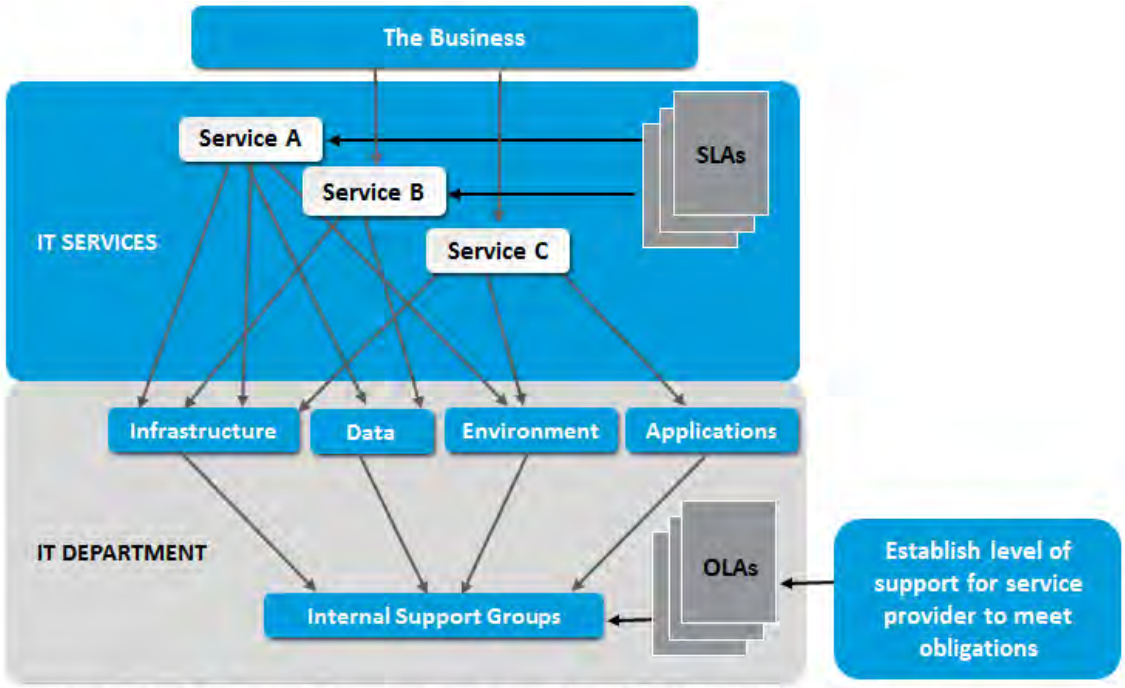

Figure 3-8: The role of an OLA in the organization.

Activities of Service Level Management

Successful Service Level Management involves taking the time to examine each requirement of the process.

Service Level Management Activity	*Description*
Design SLA framework	SLAs must be designed so that all of your services can be offered to clients in the most efficient manner possible.
Establish SLRs/ SLAs	Determine, document, and agree upon any specific service requirements that the customer needs in order to meet business objectives.
Monitor service performance	Ensure that all criteria within the SLA are measurable. Otherwise, the supplier and customer may have different definitions of quality, which can lead to disputes.
Improve client satisfaction	Seek ways to improve the customer's experience with the service. Even if all the criteria of the SLA are being met, there may still be a number of things you can do to add value to your service.
Review internal and external agreements	An IT service provider may also depend on external parties to facilitate its services. Contracts with third parties and OLAs within the IT service provider's organization ensure that all resources are aligned to satisfy SLA targets.

Service Level Management Activity	*Description*
Review and improve services	Conduct periodic service reviews in order to assess how well your services are meeting the expectations of the customer. Gaps in service quality can be addressed in a Service Improvement Plan (SIP). The SIP is addressed in detail in the Continual Service Improvement lesson.
Develop contacts and relations	The service catalog enables Service Level Management to become a proactive process as opposed to reactive. Information and trend analysis can provide an understanding of how services, business units, and processes relate to one another.

Metrics of Service Level Management

The success of an organization's ability to deliver services can be gauged through various metrics. All items listed in the SLA should be measurable for this reason. Equipment statistics such as uptime, usage, and packet drops can indicate whether there are any hardware issues. The percentage of SLAs met or missed are typically based on figures such as these. In addition, surveys and questionnaires can help you collect valuable data about overall client satisfaction.

ACTIVITY 3-3

Discussing the Service Level Management Process

Scenario

In this activity, you will discuss the Service Level Management process.

---

1. **Which of the following is not a type of Service Level Agreement?**
   - ○ Customer-based SLA
   - ○ Service-based SLA
   - ✔ Supplier-based SLA
   - ○ Multi-level SLA

2. **Which of the following is an internal agreement between the support teams of an IT service provider?**
   - ○ Department Support Agreement
   - ○ Service Level Agreement
   - ○ IT Support Agreement
   - ✔ Operational Level Agreement

3. **Which of the following is the best example of a supplier performing a service?**
   - ○ The IT Service Desk repairs a failed network card for a user.
   - ✔ An ISP provides Internet access for a company to offer e-commerce.
   - ○ An internal service technician upgrades the antivirus software on everyone's machines.
   - ○ The IT Service Desk locates and removes a virus from a user's machine.

4. **What is a SLAM chart, and what does it indicate?**

   A color coded matrix that measures SLA's

5. **What is the purpose of a service review?**
   - ○ To determine which services in the catalog should be retired.
   - ○ To determine the future demand for the particular service.
   - ✔ To assess the level of service being provided to a customer.
   - ○ To determine the value of a service in business terms.

TOPIC D

The Service Catalog Management Process

As the needs of customers and internal users evolve, so must the services that a provider offers. As new services enter the catalog, and updates or enhancements are made to those that already existed, stakeholders within the business and customers alike will want to know about them. A system must be in place to keep all interested parties informed of the services that are offered within the organization and to keep all technical information current.

The Service Catalog

The *service catalog* consists of all active and approved services that a provider currently offers to its client base. Services within the catalog are divided into components, each containing policies and guidelines that document any applicable SLAs and delivery conditions.

The distinction between a service catalog and a service portfolio is sometimes unclear. The service catalog represents only the portion of the overall service portfolio that is live and available. The service portfolio consists of all current services (Service Catalog), all pipeline services that are in consideration or in development (Service Pipeline), and all retired services that are no longer supported (Retired Services).

The Service Portfolio is managed as part of Service Strategy because it is looking holistically to where all the organization's investments in services are allocated or planned to be. The Service Catalog, however, is managed as part of Service Design because it communicates what services are currently available and the details (the SLAs) of how the service is designed and offered.

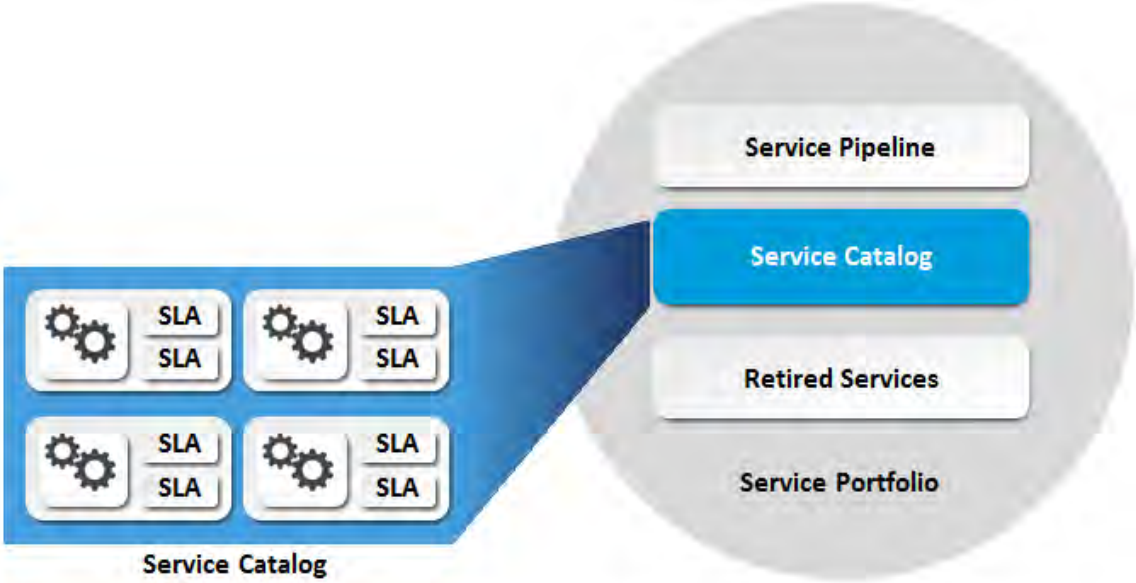

Figure 3-9: The service catalog is a component of the service portfolio.

Service Catalog vs. Service Portfolio

Rudison Technologies employs a Service Desk that provides support for end users. Information regarding all proprietary applications used by the company is included within the IT department's service catalog. However, support for a legacy content management system has been discontinued

within the past year. This would be categorized as a retired service within the overall service portfolio.

Service Catalog Management

Service Catalog Management (SCM) is the practice of maintaining an organization's service catalog. It usually contains any information relevant to the details, status, upkeep, and interactions of all current services, as well as those that are in consideration.

Managing a Service Catalog

The Service Desk at Rudison Technologies provides IT services for end users. Currently, information about each service, including SLAs, support hours, contact numbers, and more, is part of its service catalog. The department is auditing the service catalog to ensure that it correctly reflects all of the live services as well as those services ready to be delivered to customers.

Purpose, Objectives, and Scope of Service Catalog Management

Purpose: The purpose of Service Catalog Management is to provide and maintain a single source of information for all current and future operational services, and to make sure that the service catalog is available to those authorized to access it.

Objectives:

- Produce and maintain the service catalog of all operational services, obtaining update information about new or retired services from Service Transition.
- Work with service asset and configuration management to maintain accurate details for customer-facing services, including necessary controls to protect the detailed information.
- Ensure that information in the service catalog meets the requirements of other service management processes that access it.

Scope: The scope of Service Catalog Management includes all services—individual services, service packages, or combinations of different types of services—offered in the live environment. Definitions of services or service packages as well as the production and maintenance of the catalog are also included in the scope of this process. However, the fulfillment of the services is not within the scope.

Views of the Service Catalog

There are two main views of the service catalog.

View	*Description*
Business service catalog	Contains the details of all IT services that are delivered to a customer, and outlines the relationships to business units and business processes that depend on the service. This is the customer-facing view.
Technical service catalog	Contains the internal IT components of the service catalog that describe the technical details of each service provided for customers. It includes the relation of these services to shared services, components, and configuration items. This is the IT-support services view that supports the customer-facing services.

The service catalog is not limited to the two views described above; in fact, it can have as many views as desired by an organization. For example, a service catalog with three views might have a wholesale service view, a retail service view, and a supporting service view.

Activities of SCM

The service catalog is a centralized resource for all parties who are involved with providing or receiving an organization's services. Successful Service Catalog Management includes activities such as:

- Clearly defining the services offered.
- Maintaining the service catalog and making it available.
- Keeping stakeholders up-to-date about the service catalog.
- Managing the interaction and dependencies of services within the overall catalog.

Metrics of SCM

A number of measures can be used to gauge the health of a service catalog. Some examples include:

- The number of services recorded.
- The number of variances between cataloged services and actual services.
- The percentage of completeness of the actual inventory of services compared to cataloged services.

ACTIVITY 3-4

Discussing the SCM Process

Scenario

In this activity, you will discuss the SCM process.

---

1. **What is included within the service catalog?**
   - ○ The entire set of services offered, services in development, and retired services.
   - ✓ All active and approved services that a provider currently offers to its client base.
   - ○ All active services and those in development, but not retired services.
   - ○ All services that are in consideration or in development.

2. **What is the primary function of SCM?**
   - ○ To identify the suppliers best positioned to offer services to the organization.
   - ○ To determine which retired services may be worth reinstating.
   - ○ To make services as accessible to clients as possible.
   - ✓ To maintain all information about services currently offered in one centralized location.

3. **What are some of the key activities that ensure the success of the SCM process?** define servoces, acuuracy, who needs to see it, engage stakeholders

4. **What is the difference between the business service catalog and the technical service catalog?** Business customer sees technical WE see HOW something is done

---

TOPIC E

The Availability Management Process

The SCM process helps you to define the services currently being offered. However, claiming to offer a service is meaningless unless you can deliver actual results. In this topic, you will describe the Availability Management process and why it is an essential part in meeting customer demands.

Remember that the perceived value, in the eyes of the customer, is the combination of utility and warranty. Offering a service and communicating the benefit of the service covers the utility aspect of value. But what if the provider cannot live up to the requirements established during the Service Level Management process? Without the ability to deliver the services at the level of quality determined earlier in the stage, there is no warranty component of value. The Availability Management process outlines the measures you can take to ensure that customers have steady access to the services they require.

Availability

Availability refers to the capability of a service or a system to perform its function when it is needed. In essence, it is a measure of how often a service is in operation and able to provide services when called upon. Although the goal is for a system to be as highly available as possible, the level of required availability may differ across services offered. A specific level of availability may be specified in an SLA.

Remote PC Accessibility

Rudison Technologies offers a service that allows customers to access remote PCs for training purposes. Clients must establish a connection to these remote machines and then log in. In this case, availability is measured by how often these remote devices are available when a client tries to access one of them.

Availability Management

Availability Management is the process responsible for ensuring that the IT infrastructure, processes, tools, and roles are appropriate for the agreed-upon service level targets for availability. The goal of Availability Management is to establish acceptable levels of availability, monitor the services to ensure that these levels are met, and then make any improvements as needed to processes and equipment.

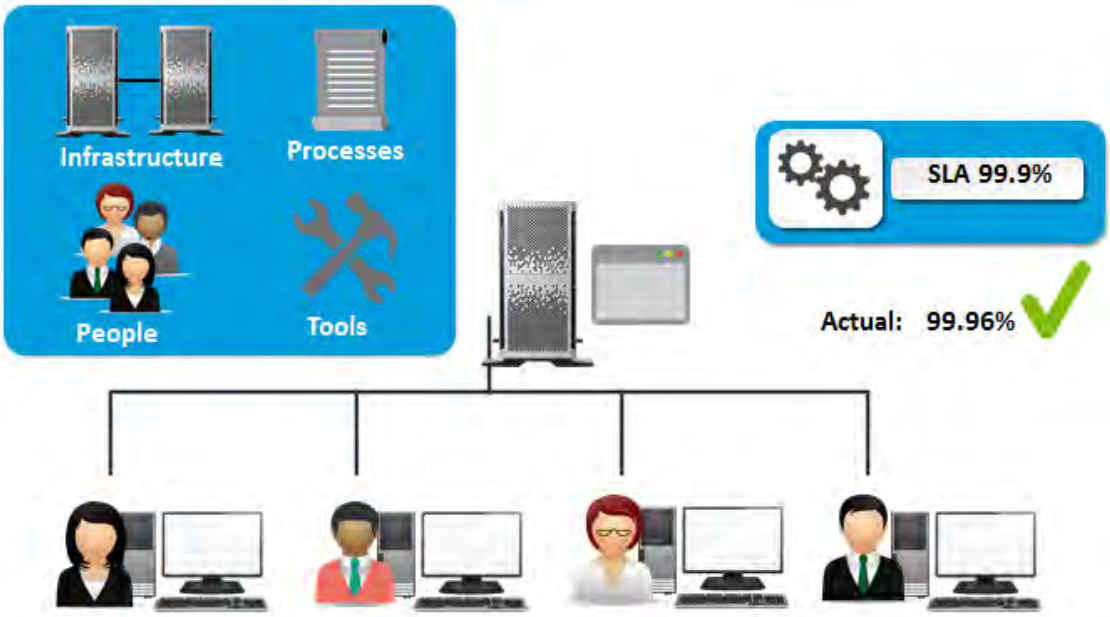

Figure 3-10: Availability Management.

Email Uptime Agreement

A service provider has promised 99.9% uptime for an email system in an SLA. The service provider and the customer agree that the email system will be down for maintenance for two hours once a week, beginning at 2:00 A.M. Sunday. Any downtime other than this planned two-hour window is to be tracked and diagnosed.

Purpose, Objectives, and Scope of Availability Management

Purpose: The purpose of Availability Management is to deliver the current availability requirements that are defined in the SLA with an eye to future business needs and cost-effective improvements. This includes the availability of end-to-end services and the applications, or components.

Objectives:

- Produce and maintain the availability plan that meets the current availability requirements. It's recommended that future requirements are taken into consideration for budget negotiation purposes.
- Provide availability-related advice to ensure business and IT decisions related to availability are made with thorough information.
- Manage delivery of service to meet the agreed-upon targets.
- Assess all change requests to verify that any potential risk to availability has been considered.
- Consider proactive steps to improve availability, including assessing risks and benefits of the improvements and implementing improvements as determined.
- Monitor availability to ensure targets are achieved.
- Optimize IT service to consistently deliver the required availability so the business can achieve its objectives.

Scope: The scope of Availability Management encompasses all phases of the service lifecycle from design to operation, and all activities—reactive and proactive—that are performed to measure and reduce downtime. All operational services and technology and supporting services fall within the scope. Basically, every aspect of service provision is within the scope of availability management.

The Availability Management Information System

The *Availability Management Information System (AMIS)* is a virtual repository of all Availability Management data, usually stored in multiple physical locations. The AMIS contains information that includes Availability Management reports, the availability plan, availability design criteria, and the availability testing schedule. Both the proactive and reactive activities of the Availability Management process interact with information stored in the AMIS.

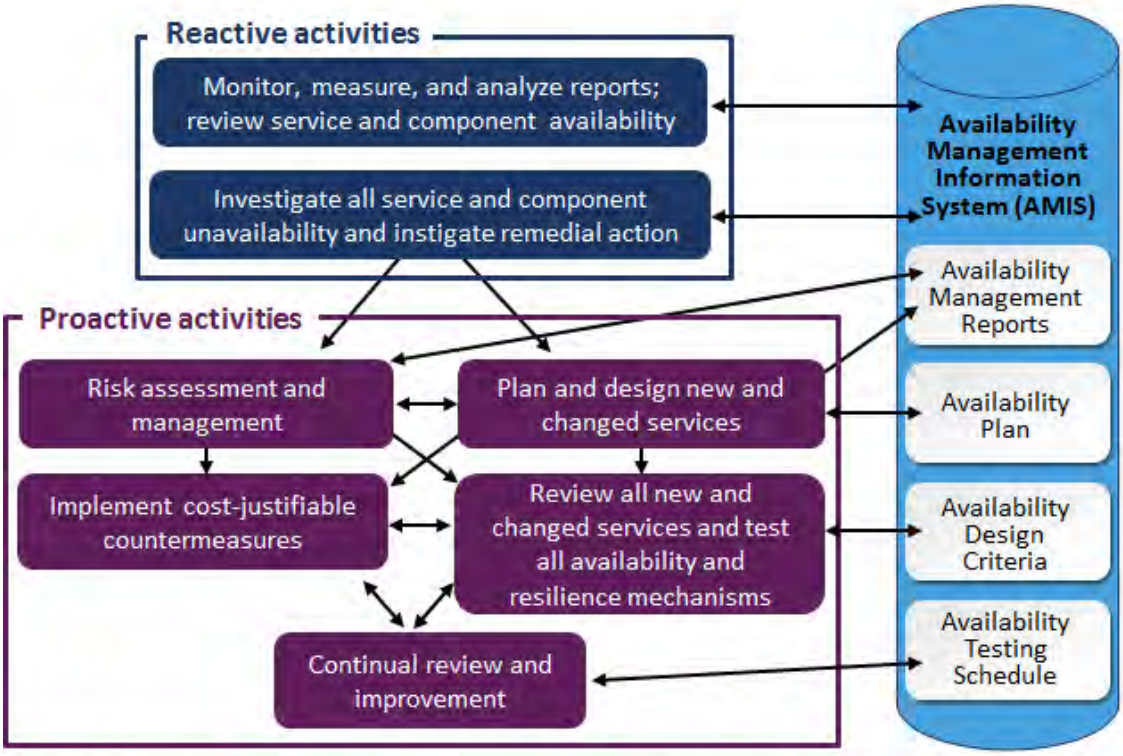

Figure 3-11: The role of the AMIS.

Service vs. Component/Resource Availability

It is possible for a service to be available even when a component of that service is not. Component availability refers to the availability of each individual component of a service, even when the service remains available. A failed component does not necessarily cause a service to be unavailable. Service availability involves all aspects of the service, including the potential impact of component availability on the availability of the service itself.

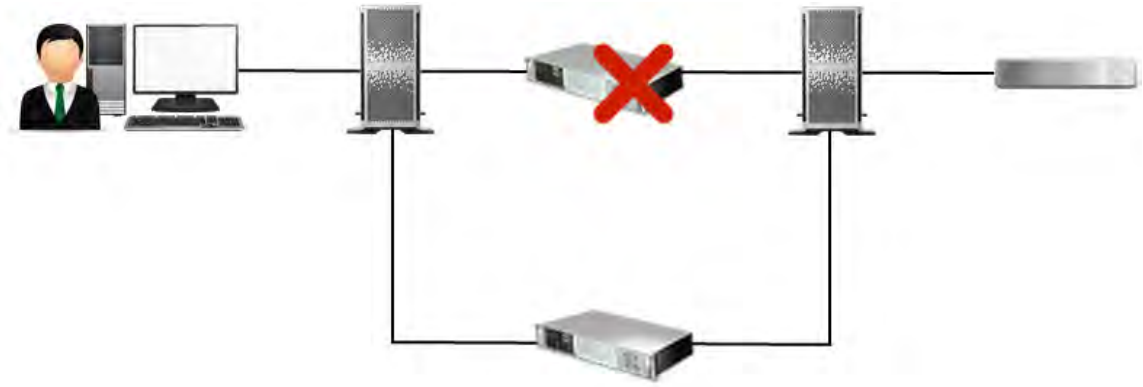

Figure 3-12: A service can still be available when a component is not.

Reliability, Maintainability, and Serviceability

A set of factors contribute to the overall availability of a system. The *reliability* of a service is defined by how long it can fulfill its purpose without an interruption. The more reliable a service is, the less frequent the interruptions and other problems. *Maintainability* refers to how quickly the service can be restored in the event of an operation failure. It is a measure of the ability to perform this restoration using internal resources. *Serviceability*, on the other hand, is a measure of the ability to perform a service restoration using a third party's resources via a service contract.

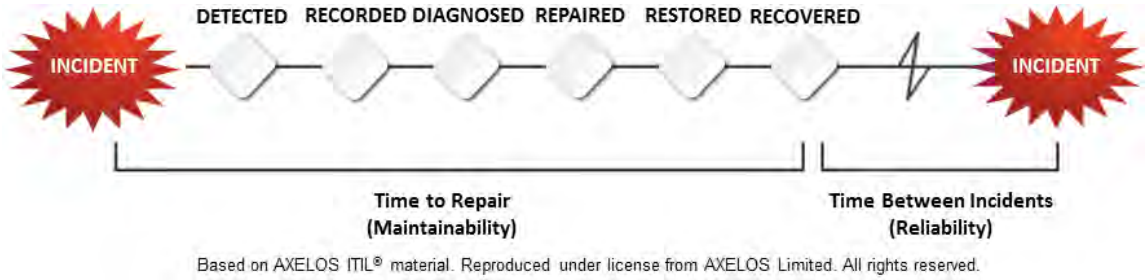

Figure 3-13: Reliability, maintainability, and serviceability.

High Availability

As businesses become more reliant upon the constant availability of IT services, there is an increased demand for highly available solutions. *High availability* is an approach to IT Service Design that aims to remove single points of failure (SPOFs) from the architecture, so that the failure of a specific device will have as minimal an effect as possible. High availability often uses technologies such as fault tolerance, resilience, and fast recovery to limit the amount of interruptions there are to the service and then reduce the amount of time required to restore that service if other precautions are unable to prevent an interruption.

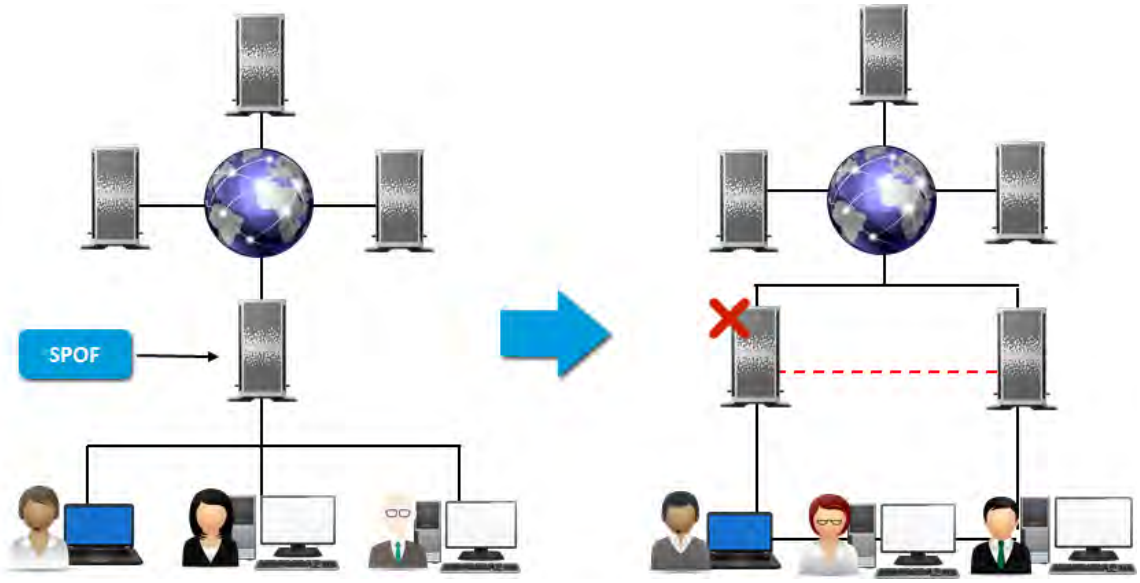

Figure 3-14: High availability aims to remove SPOFs.

Five Nines Availability

The uptime and availability of a particular system is most often measured in nines, such as 99% or 99.9%. "Five Nines" is a term used to describe a specific level of high availability, which is 99.999% uptime. To get an understanding of how difficult Five Nines availability is to achieve, it allows for only 5 minutes and 35 seconds of downtime over an entire year, which is just 6 seconds of downtime per week. The reason that availability is measured in nines is because it is assumed that 100% availability is unachievable, and instead you can only strive to achieve as many nines as possible.

Vital Business Functions

A *Vital Business Function (VBF)* is a critical element of business processes supported by an IT function. As such, VBFs require a greater level of availability that is typically achieved through:

- High availability, where component failures are invisible to users.
- Fault tolerance, which allows a component to continue operating even after a part failure.
- Continuous operation, where planned downtime is masked to users.
- Continuous availability, where planned or unplanned downtime is masked to users.

Activities of Availability Management

The activities involved with Availability Management are generally categorized as either proactive or reactive.

Availability Management Activities	*Description*
Proactive	These activities are executed during Service Design of the IT Service Lifecycle, and include: • Identifying vital business functions. • Designing for availability. • Conducting an SPOF analysis. • Modeling to test and analyze predicted usage/availability. • Risk analysis and management. • Creating availability test scenarios. • Preventive maintenance. • Developing a Projected Service Availability document. • Continuous reviews and improvement.
Reactive	These activities are executed during Service Operation of the IT Service Lifecycle, and include: • Monitoring, measuring, and reporting service and component availability. • Analysis of interruptions. • Service failure analysis. • Conducting an Expanded Incident Lifecycle.

Metrics of Availability Management

The effectiveness of Availability Management is often measured by the number of negative outcomes and their reduction over time. The reliability of the IT service is determined by comparing the expected level of service availability with the actual level of availability, as determined by statistics such as uptime and device failures. You can measure the costs associated with interruptions and maintenance, or determine the cost effectiveness of a high-availability solution. Expanded Incident Lifecycle statistics may be useful as well; this includes the Mean Time Between Failures (MTBF), Mean Time Between Service Incidents (MTBSI), Mean Time To Repair (MTTR), and Mean Time to Restore Service (MTRS), a commonly used downtime metric.

ACTIVITY 3-5

Discussing the Availability Management Process

Scenario

In this activity, you will discuss the Availability Management process.

---

1. **The Availability Management process considers three primary facets: reliability, maintainability, and serviceability. Reliability of a service is defined by how long the service can fulfill its purpose without interruption. Which of the following best describes maintainability?**
   - ○ How quickly the service can be restored after a failure.
   - ○ How quickly a third party can restore a service per contracts.
   - ✓ How quickly a service can achieve high availability.
   - ○ How long a service can stay online.

2. **What are some of the methods that can be used to measure availability?**

   measure uptime via logs/reporting device utilization

3. **True or False? A service can still be available when components of that service are unavailable.**
   - ✓ ☑ True
   - ☐ False

4. **What is meant by the term "high availability"?**
   - ✓ ○ The IT architecture eliminates single points of failure through fault tolerance and resilience.
   - ○ The service is available 100% of the time.
   - ○ All data is backed up and stored offsite so that it is always available even during an outage.
   - ○ A supplier can restore the system to normal functionality quickly when it is disrupted.

TOPIC F

The Capacity Management Process

Knowing what services you need to provide can sometimes be relatively straightforward. The analysis of client needs and the organization's capabilities identify the areas where resources should be allocated. However, determining precisely how much of that service to offer can be challenging. Providing too little capacity results in customer dissatisfaction and missed opportunities to generate revenue. On the other hand, providing too much of a service means that too many resources are being reserved for the service—resources that could be better used elsewhere. The aim of capacity management is to find the best possible balance between service provisioning and cost.

Capacity

In the ITIL world, *capacity* refers to the maximum amount of throughput that an IT service can support at any one time. Essentially, it is the greatest amount of a specific service that the provider can support. Too low of a capacity puts the organization at risk of failing to meet SLAs driven by customer business needs. On the other hand, too great a capacity means that too many unused resources are being allocated to a particular service—resources that could be put to use elsewhere.

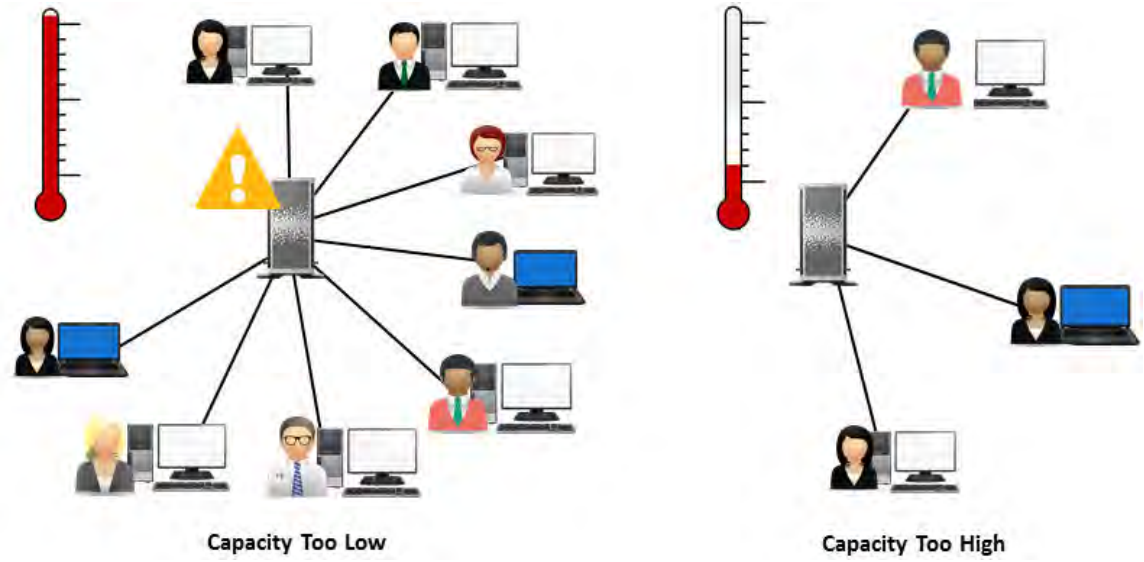

Figure 3-15: Capacity must match demand.

Deficit in Capacity

Rudison Technologies has employees located across the country. Voice over IP (VoIP) technology is essential for hosting virtual web conferences in order to minimize travel costs. However, as more and more employees are hired outside of the main location, the usage of web-based conferencing has been on the rise. The IT Service Desk is beginning to receive complaints about poor audio quality during virtual meetings. The IT staff believes that usage of the web conferencing is beginning to surpass the capacity of the system. Some changes will need to be made to increase the capacity and maintain acceptable service levels.

Capacity Management

Capacity Management is the process responsible for ensuring that the capacity of IT services meets expected levels of service performance, while keeping costs within budget. Finding the optimum

level of capacity is no easy task. The usage levels of an IT service can vary on a daily basis and will likely change over time. In addition, increases in capacity typically accompany increases in costs. The goal of Capacity Management is to leverage the current needs of the business with anticipated future needs. This requires insightful analyses of future trends and requirements and involves careful planning to ensure that all required resources can be provisioned cost effectively.

Balancing the Present and Future

In revisiting the VoIP capacity issue at Rudison Technologies, it is clear to the IT Service Desk that changes need to be made to the infrastructure in order to accommodate the increased usage of web conferencing. However, meeting current demands will only address the problem right now. Effective Capacity Management should factor in not just the demands of today, but also the demands of tomorrow. As resources are limited, smart decisions must be made about where resources can produce the greatest gain.

Purpose, Objectives, and Scope of Capacity Management

Purpose: The purpose of Capacity Management is to make sure that the capacity of IT services and IT infrastructure is able to meet the current and future capacity and performance requirements, in a timely and cost-effective manner.

Objectives:

- Create and maintain the Capacity Plan that details the current and the expected future requirements, including the actions necessary to meet these requirements.
- Advise and guide other areas of the business on capacity and performance-related issues.
- Manage the capacity and performance of services and resources to ensure that agreed-upon targets are met.
- Provide assistance to diagnosing and resolving capacity and performance-related incidents and problems that might result from insufficient capacity.
- Assess the impact of service and resource changes on the Capacity Plan, and update the plan accordingly.
- Implement proactive service improvement measures when costs are justified.

Scope: Capacity management is responsible for having acceptable capacity at all times—both short-term and long-term business requirements. Changes in demand are also within the scope. As demand for services decreases, the capacity should be reduced accordingly to avoid unnecessary spending. Capacity management is concerned with:

- Hardware and software technology of IT components and environments.
- Space planning and capacity of environmental systems.
- Human resource capacity, especially when a lack of resources might cause a breach of SLA or OLS targets.

The Capacity Plan

One of the key activities of Capacity Management is to produce a capacity plan. The *capacity plan* documents the current levels of resource utilization and service performance, and it forecasts the future requirements for new IT resources to support the IT services that meet business objectives. It should clearly mention any assumptions made and also include any quantifiable recommendations regarding resources required, costs, benefits, impacts, and so on. Broadly speaking, there are capacity plans for the business and the service, and at a component or resource level. Each plan maintains current and historic records, current known issues, and the designed tolerance of volume or bandwidth based on demand and supply.

The production and maintenance of a capacity plan should occur at pre-defined intervals. It is, in essence, an investment plan, and should therefore be published annually, in line with the business or budget lifecycle, and completed before the start of negotiations on future budgets.

Subprocesses of Capacity Management

Capacity Management is a complex process that utilizes three key subprocesses.

Capacity Management Subprocess	*Description*
Business Capacity Management	Translates customer requirements into specifications for the IT service, which are to be designed and implemented in a timely fashion. The focus is on both current and future needs. This is about the throughput required by business processes and really doesn't have anything to do with IT. For example, this is the difference between a bank that processes 10 loan applications a day and a bank that processes 100 loan applications a day.
Service Capacity Management	Identifies the performance of the operational IT service in order to ensure that the performance meets or exceeds the agreed-upon level. The IT service capacity must be sufficient to support the business capacity requirements. For example, the bank must receive the appropriate service levels from its IT service provider to underwrite loans at desired levels of demand.
Component (Resource) Capacity Management	Manages and predicts the performance of each individual technology component to ensure that all components within the infrastructure are able to support the service capacity that is required. For example, the server running the loan application software must be able to keep up with the demand for that service as offered to customers of the IT service provider.

The Capacity Management Information System

The *Capacity Management Information System (CMIS)* is the centralized virtual repository used to capture and manage data for anything relevant to capacity needs. The CMIS typically contains capacity and performance data, forecasts, and the capacity plan. Other processes draw from information that is collected in this repository. Data in the CMIS can also be used for Service Level Management reporting purposes.

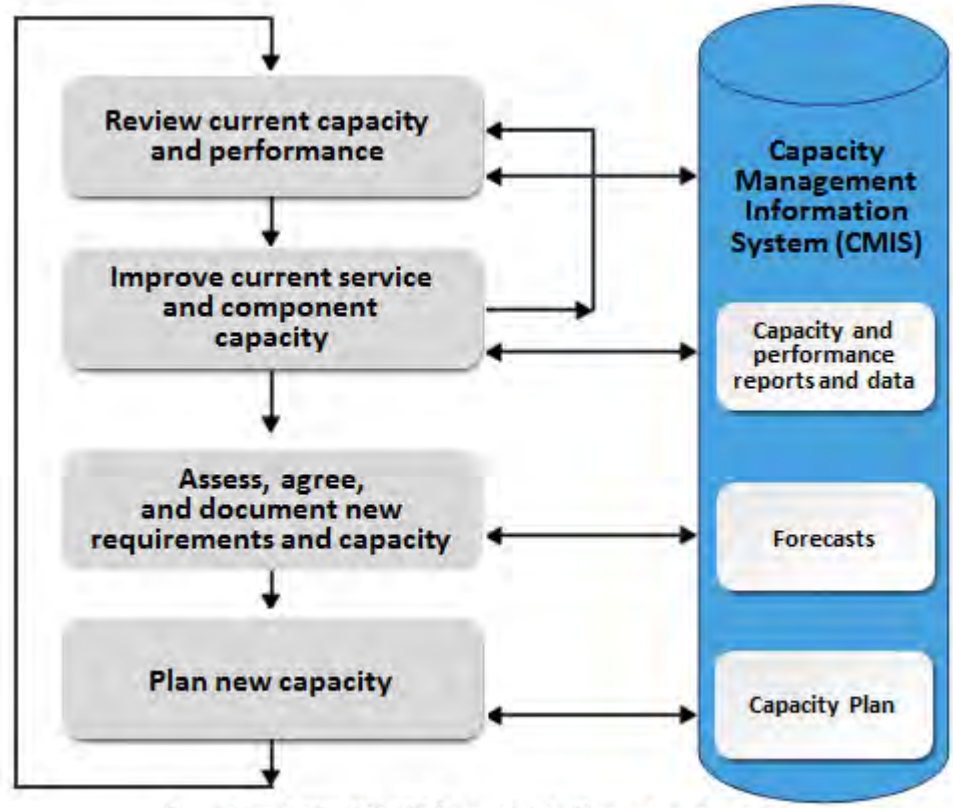

Figure 3-16: The CMIS.

Activities of Capacity Management

The activities involved with Capacity Management, as with Availability Management, can be either proactive or reactive.

Capacity Management Activities	*Description*
Proactive	Proactive activities include: • Assessing current needs and utilization. • Predicting future needs and usage trends. • Budgeting and planning for upgrades. • Seeking ways to increase performance before there are problems.
Reactive	Reactive activities include: • Monitoring and measuring IT usage and response times. • Responding and reacting to issues triggered by inadequate capacity. • Tuning and implementation.

Metrics of Capacity Management

Effective Capacity Management is centered on the analysis of statistics and trends. Today's capacity requirements can be determined by the following:

- Regular review and testing of the business and IT service continuity plans.
- Increase in validated awareness of the business impact, needs, and requirements.
- Validated regular communication of the ITSCM objectives and responsibilities within the appropriate business and IT service areas.

ACTIVITY 3-6

Discussing the Capacity Management Process

Scenario

In this activity, you will discuss the Capacity Management process.

---

1. **In ITIL, what does the term capacity refer to?**
   - ○ The total number of customers that may need to access a specific service.
   - ○ The maximum number of clients who can use a service at a given time.
   - ✓ The maximum throughput that a service can deliver while meeting agreed-upon service levels.
   - ○ The total number of resources available that a company could allocate toward a service.

2. **What are some of the proactive and reactive activities conducted in Capacity Management?**

   predict future needs based on trends - looking for new ways

3. **What type of information is most likely found within a CMIS?**
   - ○ Capacity plan, availability statistics, and SLRs
   - ○ Suppliers, contracts, and SLAs
   - ○ Business units, customers, and employees
   - ✓ Capacity and performance data, forecasts, and capacity plans

---

TOPIC G

The Information Security Management Process

The Capacity Management process helps you provide the right balance between the cost of a service and the level of capacity of the service, but you must also address the issue of information security. In this topic, you will describe the importance of protecting sensitive information.

Imagine all of the problems that could result from losing your wallet. If you are lucky, an honest person who comes across it will return it to you without misusing any of the information it contains. But what happens when someone with questionable ethics finds it? This type of situation is similar to one in which sensitive data stored on a server is accessed by those who do not have rights to that information. Poor information security can lead to very serious legal actions if the wrong people have access to confidential information. It is imperative to have both physical and logical security measures in place to protect data.

Information Security Management

Information Security Management is a Service Design process that involves the overall security of an organization's assets, information, and services. The concerns of Information Security Management extend beyond the technical aspects of system access controls, infrastructure, and service vulnerabilities. It includes policies and procedures that protect the business from both external and internal security breaches. Effective Information Security Management also protects the business from legal issues. Customer data, especially that of external clients, is very sensitive and must be protected as part of the information confidentiality agreement.

Employee Data

The HR department at Rudison Technologies stores very sensitive data about every company employee in a database. It is critical that only certain staff members have access to this information. The IT Service Desk must ensure that policies are enforced that categorize employees based on their role in the organization, and that only authorized personnel, such as HR staff, can view this specific information. Personal data such as Social Security numbers, salaries, and home addresses should not be made accessible to other employees.

Three Components of Information Security

There are three key components of information security. These are confidentiality, integrity, and availability, sometimes referred to as the CIA triad. Confidentiality means ensuring that information is restricted to only those who are authorized to view it. Integrity refers to the accuracy and validity of the data itself. Availability, in the CIA sense, is a measure of how easily specific information can be accessed. The CIA model illustrates the complexity of securing information, as focusing too heavily on any one element can affect the others. For instance, if confidentiality is overemphasized, then the information will be less available. Similarly, making information too available can comprise the integrity and confidentiality of the data.

Keep in mind that the focus of security is on service and business needs. The business defines the requirements, not IT.

Purpose, Objectives, and Scope of Information Security Management

Purpose: The purpose of Information Security Management is to ensure that IT security aligns with and meets the business security requirements. This includes protecting the business assets,

information, data, and IT services, and ensuring their confidentiality, integrity, and availability requirements are met.

Objectives:

- Maintain the confidentiality of information.
- Ensure the integrity of information.
- Ensure the availability and usability of information when required.
- Establish trusted business exchanges with other enterprises or partners.

Scope: Information Security Management is concerned with all aspects of protecting the business assets, information, data, and IT services. It's the business's responsibility to identify what needs to be protected and the level of protection that is required. As an integral part of corporate governance, it is ISM's responsibility to provide the required level of protection as documented in the Information Security Policy.

Guidelines for Information Security Policy Components

Note: All Guidelines for this lesson are available as checklists from the **Checklist** tile on the CHOICE Course screen.

The *information security policy* governs the organization's approach to Information Security Management. The information security policy should be very comprehensive and include guidelines that cover:

- Use and misuse of IT services.
- Access control.
- Password control.
- Email and Internet usage.
- Antivirus settings.
- Remote access.
- Supplier access.
- Asset disposal.

Guidelines for Information Security Management Activities

Effective Information Security Management requires diligently completing activities, such as:

- Assessing the information being protected.
- Communicating and enforcing the security policy.
- The operation, maintenance, and distribution of the information security policy.
- Documenting controls that support the policy and mitigate risks.
- Monitoring and controlling security breaches and incidents.
- Proactively improving security controls before incidents occur.

Metrics of Information Security Management

Information Security Management can be gauged through a number of metrics. The concise and tangible measures that you can use to track the effectiveness of your security policy include the number of security-related incidents logged by the system, the average time it takes to remediate and correct a breach, and the instances of non-conformance between the business security policy and the information security policy. Metrics that are not as easily measured may include the level of support and commitment of upper-level management, and user awareness and compliance with security policies.

ACTIVITY 3-7

Discussing the Information Security Management Process

Scenario

In this activity, you will discuss the Information Security Management process.

1. **What are some of the potential consequences of poor information security measures?** breach - reputation risk of damaging moral

2. **What are some of the components that a good information security policy should cover?** awareness - guidelines, password controls, asset disposal, email etiquette

3. **What metric best shows an IT group's efficiency in resolving security incidents?**
   - ○ A log of all security incidents.
   - ✔ The average time to correct a security breach.
   - ○ User compliance statistics.
   - ○ The average cost of security countermeasures.

TOPIC H

IT Service Continuity Management

The Availability Management process helps you to devise ways to keep your services highly accessible to your users. However, occasional outages or even critical disasters are unavoidable. When such interruptions occur, the service must be restored as quickly as possible. In this topic, you will examine IT service continuity techniques.

Even the most reliable systems do not achieve 100% uptime. It is unfeasible to have a total absence of temporary outages of a service, whether they be brought on by equipment failures or routine preventive maintenance. The goal of IT Service Continuity Management is to recover quickly from disasters and support the business continuity management requirements of the customer. By using both proactive and reactive measures, you can develop a plan that allows for a swift, immediate recovery from a service outage, as well as gradual actions to take to prevent future outages.

IT Service Continuity

IT service continuity is a measure of the ability of an organization to resolve critical service interruptions. An IT service outage is more than a mere inconvenience to both the clients of the service and the service provider. Service interruptions can be costly, both in terms of business activities not being performed during the outage, and the effort required to restore operations.

The *IT service continuity plan* addresses the steps that need to be taken in order to restore one or more interrupted IT services. This plan describes the people involved, any required communications, best practices, and equipment that may be required in order to minimize the downtime.

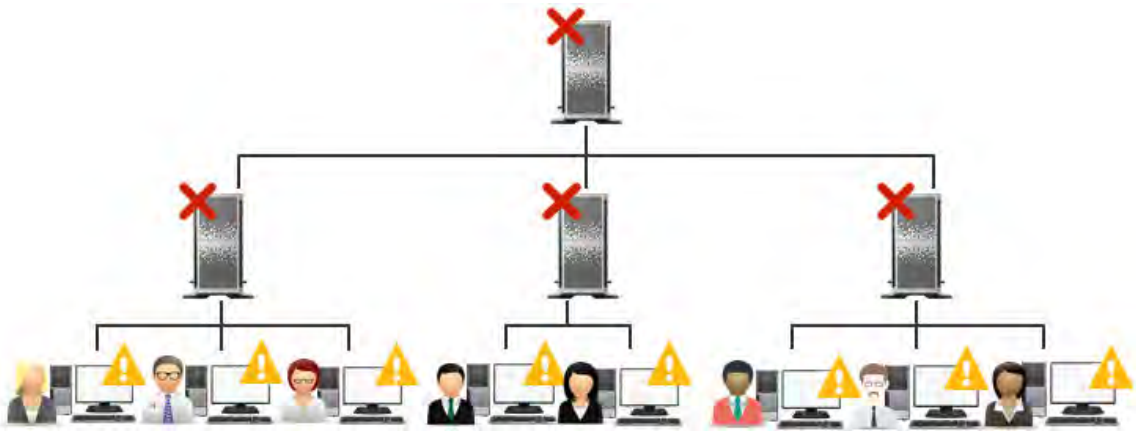

Figure 3-17: IT service continuity addresses disastrous outages.

Multiplier Effect of an Outage

Fuller & Ackerman Publishing uses a content management system to prevent document versioning issues amongst its warehouse of files. Many users access this repository throughout the day to check in and check out files. An interruption to this system would leave users without a way to check in work for another user or a way to view any documents in the repository. Even if this service outage lasts only 15 minutes, if 100 users are affected by it, this adds up to approximately 25 hours of lost labor while the service is restored. It is imperative to have a plan in place ahead of time to minimize any interruptions that may occur.

IT Service Continuity Management

IT Service Continuity Management (ITSCM) is the process that supports the overall business continuity management (BCM) process by establishing a framework that ensures that interruptions in an IT service are resolved within agreed-upon time frames. It involves managing a business's ability to continue to deliver a pre-determined level of service following a critical interruption to that service.

Note: BCM is responsible for managing risks that could seriously affect the business. It sets the objectives, scope, and requirements for ITSCM.

Planning for the Unplanned

Hexa Web Hosting has an SLA with its customer base that a specific web application will be provided 24 hours a day. To avoid the service outages that would result from a catastrophic power failure, the business has a backup power generator that is capable of powering the servers that run this application until the main power can be restored. This represents one component of Hexa's overall IT Service Continuity Management process.

Purpose, Objectives, and Scope of IT Service Continuity Management

Purpose: The purpose of IT Service Continuity Management is to support the business continuity management (BCM) and ensure that IT service providers can provide the agreed-upon level of IT service.

Objectives:

- Identify and assess the risks to IT services and implement cost-effective countermeasures to reduce or remove the risk of recovery after a disaster occurs.
- Ensure the appropriate continuity mechanisms are in place to meet agreed-upon business continuity targets.
- Develop detailed set of IT service continuity plans to recover services to an agreed-upon level and within the agreed-upon time frame after the event of a disaster.
- Conduct regular Business Impact Analysis to verify that the plans are still aligned with changing business impacts and requirements, and revise plans as necessary.
- Advise and consult with other business units and IT service management processes on continuity-related issues.
- Implement proactive measures to improve the availability of services when the cost is justified.
- Work with Supplier Management to ensure continuity of service when third-party suppliers are involved.

Scope: IT Service Continuity Management is primarily focused on developing plans to recover from major events or disasters rather than interruptions or minor incidents which are handled by the Incident Management or Problem Management processes. Each organization will have their own definition of disaster or catastrophe. ITSCM is concerned with the IT assets and configurations that support business process and providing continuity for IT services at the agreed-upon level after a disaster.

IT Service Continuity Management vs. Availability Management

IT Service Continuity Management is sometimes confused with Availability Management. Availability Management includes the day-to-day activities that allow a service or a system to perform its function when it is needed. IT Service Continuity Management, on the other hand, includes activities that deal with service restoration when a catastrophic interruption occurs. The focus is on restoring service levels as quickly as possible.

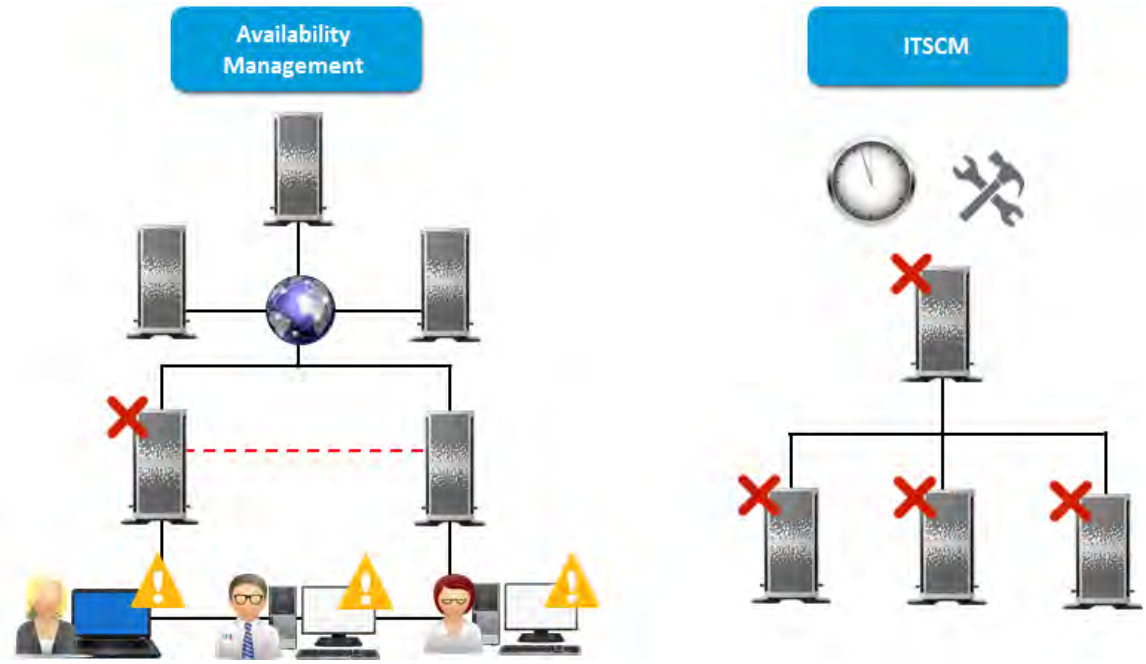

Figure 3-18: Availability Management and ITSCM address different issues.

Activities of IT Service Continuity Management

The primary activities of IT Service Continuity Management are broken down into four phases.

IT Service Continuity Management Activity	*Description*
Phase 1: Initiation	The entire organization is outlined, along with required activities. These include defining the recovery policy, specifying the scope and conditions, allocating resources for recovery and prevention, defining the management structure, and approving plans for quality levels.
Phase 2: Establishing requirements and strategies	This activity involves fulfilling two primary requirements and addressing two main strategies: **Requirement 1: Business Impact Analysis:** The *Business Impact Analysis (BIA)* aims to quantify the impact of an outage. This can be in terms of hard impact, which would be a measurable loss, such as financial losses, or a soft impact, which might be harm to the reputation of the business. **Requirement 2: Risk estimate:** This analysis takes into account any risks that can affect the continuity of services. Countermeasures that may be taken to mitigate these risks are defined as well. **Strategy 1: Risk-reducing measures:** This includes any preventative measures that can be taken to reduce the likelihood of a service interruption. Such proactive activities may include the implementation of fault tolerant systems, offsite storage, and strong IT security controls. **Strategy 2: IT recovery options:** This includes all of the reactive measures that can be taken to restore service functionality in the event of an interruption. This covers all stages of system recovery—immediate, fast, intermediate, and gradual. Any manual work-arounds or reciprocal agreements may be included as well.

IT Service Continuity Management Activity	*Description*
Phase 3: Implementation	The plan is approved and put into place. This plan should include any changes in roles or authority in the event of a critical service interruption. The recovery process can be shortened by allowing specific senior personnel to have decision-making power instead of going through typical communication channels.
Phase 4: Operation	Personnel that are involved in service continuity are made aware of the established policies and are trained. System audits are conducted, and regular testing is performed.

Risk Reducing Measures

According to the ITIL guidance, risk reducing measures are a response to a risk where proactive actions are taken to reduce the probability of the event occurring by performing some form of control to reduce the impact of the event should it occur. Common reduction measures include avoidance, transfer, and mitigation.

Business Impact Analysis

A *Business Impact Analysis (BIA)* identifies the overall financial and operational impact that a service outage would have on the business. The loss of any IT service will have at least some impact on the flow of operations and the assets and customers involved. The goal of the BIA is to determine what the minimum requirements of each service are in order for critical business needs to be met. This helps determine the disaster recovery model for business continuity, which in turn reveals related requirements for the IT infrastructure. The risk of each possible interruption scenario is also considered in order to help the organization prioritize its contingency plan.

Consequences of a Failure

My Footprint Sports hosts a website where users can make purchases online. The ability to complete a purchase requires that the database containing the customer's contact and credit information be readily accessible. The company must identify the risks associated with an equipment failure that makes this information unavailable. The company performs a BIA to identify the vital business functions associated with different interruption scenarios, which will serve as a foundation for an IT recovery policy that will minimize the losses that result from a service failure.

Metrics of IT Service Continuity Management

Some of the measures used for the effectiveness of Availability Management may be applied to IT Service Continuity Management. To determine the effectiveness of continuity management, you can use the following:

- Regular review and testing of the business and IT service continuity plans.
- Increase in validated awareness of business impact, needs, and requirements.
- Validated regular communication of the ITSCM objectives and responsibilities within the appropriate business and IT service areas.

ACTIVITY 3-8

Discussing the IT Service Continuity Management Process

Scenario

In this activity, you will discuss the IT Service Continuity Management process.

---

1. **What is IT Service Continuity Management primarily concerned with?**
   - ○ Preventing service interruptions from occurring.
   - ○ Ensuring that resources are being used on the service most critical to the business.
   - ✓ Ensuring that catastrophic service interruptions are resolved within acceptable time frames.
   - ○ Ensuring that suppliers are meeting contract terms in order for the organization to meet its obligations.

2. **What is used to determine the impact of a service interruption?**
   - ○ Service Level Agreement
   - ✓ Business Impact Analysis
   - ○ Service Continuity Analysis
   - ○ Business Requirement Analysis

3. **What is the primary difference between Availability Management and IT Service Continuity Management?**

   avaiability cocerened about day to day and continutity is how quickly we can recover from disaster

---

TOPIC I

The Supplier Management Process

Much of Service Design is centered on planning a framework for being able to provide services to clients. However, not all resources and capabilities are within the organization that provides the service. In many cases, the organization is depending on other external parties to support its operations with additional services. The Supplier Management process helps you to evaluate, maintain, and improve supplier relations.

It is often the case that service providers are also customers at the same time. IT service providers typically count on suppliers for support, as it is often more cost-effective to outsource a specific resource rather than absorb the overhead of providing it internally. For example, a cloud storage provider purchases its hardware from an equipment manufacturer. Through effective supplier management, an organization can select the best suppliers to meet its needs and develop strategies to improve service performance over the life of a contract.

Suppliers

A *supplier* is a third party that plays an essential role in the ability of a service provider to offer a service to a customer. In the ITIL world, a supplier is an external entity that enables an organization to provide its services. A supplier may be a hardware vendor, software vendor, Internet service provider (ISP), telecom provider, shipper, or any other business that is a critical component of a provider's operations.

Offsite Hosting

Rudison Technologies offers a service that allows customers to access remote PCs for training purposes. However, these remote devices are located offsite and are hosted by Hexa Web Hosting. In this scenario, Hexa is a supplier for Rudison, as Rudison's ability to provide this remote PC service is contingent upon customers being able to connect to this remote location.

Supplier Management

A supplier is any external party that plays a role in the ability of a service provider to offer a service to a customer. *Supplier Management* is the process by which suppliers are overseen to ensure that the services they are providing are sufficient, so that the IT service provider is able to fulfill its obligations to its own customers. Contractual obligations between the supplier and the service provider must be met in order for the service provider to render its own services.

Selecting a Supplier

Rudison Technologies wants to offer a service that allows clients to access remote PCs so they can perform configurations in a simulated environment. Since these devices are located offsite, Rudison requires that they be hosted and maintained by an outside supplier. The company carefully investigates the pool of available suppliers to determine who is best suited to meet the business demands at the most favorable cost.

Purpose, Objectives, and Scope of Supplier Management

Purpose: The purpose of Supplier Management is to ensure that suppliers provide value for money, and ultimately provide the necessary IT services to the customer.

Objectives:

- Ensure that suppliers deliver the agreed-upon services.

- Negotiate and manage contracts and agreements with suppliers through the contract's lifecycle.
- Select suppliers and ensure that agreed-upon terms are aligned with the business requirement and support the service level targets.
- Monitor and manage supplier performance, including conducting reviews.
- Develop and maintain a supplier policy and a Supplier and Contract Management Information System (SCMIS).

Scope: The scope of Supplier management includes all of the contracts and suppliers necessary to provide the service. It's recommended that the critical suppliers are identified, such as suppliers who provide network connectivity, and ensure that they are properly supported. Supplier Management handles the ongoing relationship with the suppliers throughout the life of the contract and records identified improvements in the CSI register. Supplier management must comply with corporate standards, guidelines, and requirements, and work within the financial and procurement framework of the organization.

Supplier Management Infrastructure

The figure shown illustrates a typical supplier management infrastructure. A single Process Owner coordinates with the contract manager and each supplier manager. Each supplier that supports a service is handled by a single supplier manager. However, one supplier manager may handle several suppliers. Each supplier manager attempts to ensure that his or her supplier is meeting the terms and conditions of the contract and is always looking for ways to increase the value of the services received.

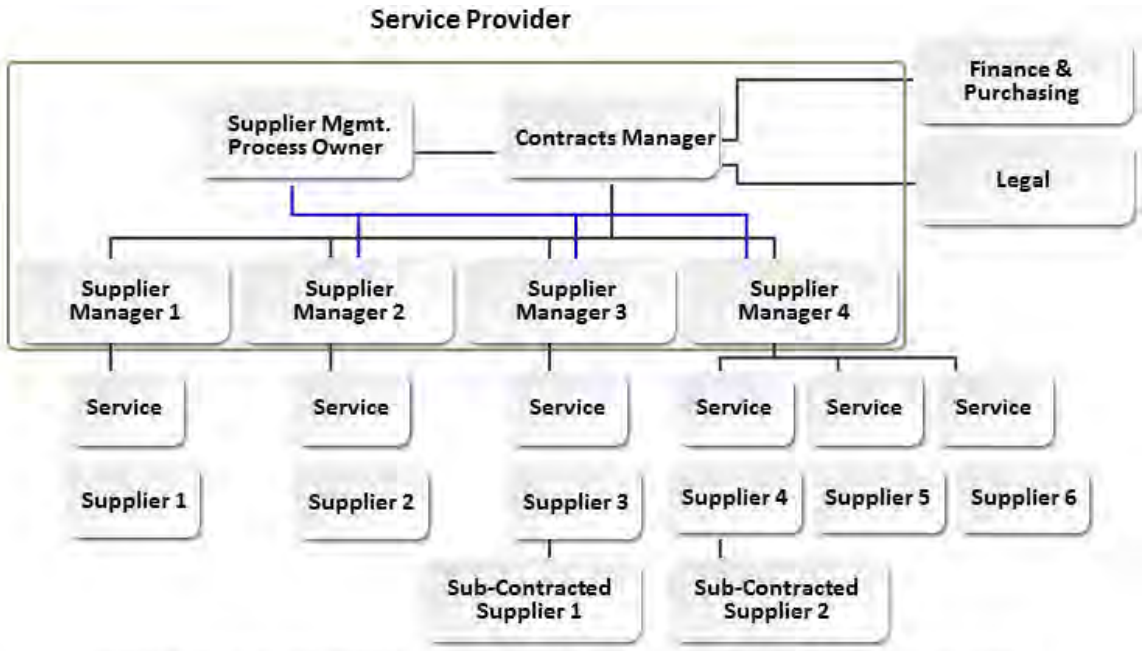

Figure 3-19: The supplier management infrastructure.

Activities of Supplier Management

The key activities of the Supplier Management process can be broken down into six phases, as described in the supplier contract lifecycle.

Supplier Management Phase	Description
Identify business requirements	First, the organization must clearly define its own requirements, develop a supplier policy, and develop a business case.
Select new suppliers	Suppliers must be evaluated from the pool of available candidates that can meet business requirements. Determining the best supplier may depend on a prior relationship with the supplier, the cost of the service, and the reliability of the supplier.
Categorize suppliers and contracts	Some suppliers are more critical to the success of an organization than others. The importance of a supplier is parallel to how crucial the service is to the success of the organization. Subdivisions may be formed to maintain strategic relationships with key suppliers, either at a high level, a tactical level, or at the execution level.
Regulate suppliers and contracts	All suppliers and contracts should be added to the *SCMIS (Supplier and Contract Management Information System)*, so that all information regarding current suppliers is centralized. This can help you provide baselines and develop consistent expectations across suppliers.
Manage performance	Both the supplier's and the organization's processes must be in tune. You must establish how the provider can contact the supplier in case there is an incident, the scope of the service, and whether or not the supplier should conform to the provider's change management processes.
Renew or end contract	The contract must be evaluated to determine if relations with the supplier make strategic sense for the organization. You should take into account the relevance of the supplier in future business operations and the supplier's performance. Benchmarking can help you determine which suppliers are performing well, and identify areas of improvement for others. If it is decided that the contract should not be renewed, it is important to outline the legal, financial, and operational impact on the organization and how its services may be affected.

Supplier Categories

The following table describes the four supplier categories.

Category	Description
Strategic	For significant partnering relationships that involve senior managers sharing confidential strategic information to facilitate long-term plans. These relationships would normally be managed and owned at a senior management level within the service provider organization, and would involve regular and frequent contact and performance reviews. These relationships would probably require involvement of service strategy and service design resources, and would include ongoing specific improvement programs (e.g., a network service provider supplying worldwide networks service and their support).
Tactical	For relationships involving significant commercial activity and business interaction. These relationships would normally be managed by middle management and would involve regular contact and performance reviews, often including ongoing improvement programs (e.g., a hardware maintenance organization providing resolution of server hardware failures).

Category	Description
Operational	For suppliers of operational products or services. These relationships would normally be managed by junior operational management and would involve infrequent but regular contact and performance reviews (e.g., an Internet hosting service provider, supplying hosting space for a low-usage, low-impact website or internally used IT service).
Commodity	For suppliers providing low-value and/or readily available products and services, which could be alternatively sourced relatively easily (e.g., paper or printer cartridge suppliers).

Supplier Management Models

Note: These supplier management models are not addressed in the ITIL Foundation Syllabus, but are provided as helpful business concepts for reference.

Partners are an important factor in the design of a service. Partners and suppliers can be in the following forms:

- *Insourcing* is a model in which the resources to design, implement, maintain, and support are all internal.
- *Outsourcing* is a model in which these resources are provided by an external organization.
- *Co-sourcing* uses a combination of insourcing and outsourcing in order to provide services to a client.
- *Multi-sourcing*, sometimes known as a partnership, is when several organizations make an agreement to work together to accomplish business objectives.
- *Business process outsourcing* is a model in which an external organization is used to provide and manage another organization's processes, generally at a lower-cost location.
- *Application service provisioning* is a delivery model in which application services are offered to clients over a network.
- Lastly, *knowledge process outsourcing* is when an external organization is used for its specialized domain knowledge.

Metrics of Supplier Management

One of the most critical metrics of Supplier Management is the performance of the supplier. Baselining can give you an indication of how well the supplier is performing both over time and against the industry average. The time it takes for a supplier to respond to and resolve any technical or operational issues can be a helpful measure in determining a supplier's ability to react to disruptions. A supplier's alignment with the objectives of the service provider is another key measure used to determine whether relations with the supplier should continue.

ACTIVITY 3-9

Discussing the Supplier Management Process

Scenario

In this activity, you will discuss the Supplier Management process.

---

1. **What is the main purpose of supplier management?**
   - To ensure that an IT service meets expected performance levels within budgeted costs.
   - To ensure that the IT service infrastructure supports agreed-upon service levels.
   - To negotiate and agree upon service levels.
   - ✓ To ensure third-party services enable an IT service provider to meet customer obligations.

2. **Where is data pertaining to all suppliers and their contracts stored?**
   - CMS
   - ✓ SCMIS
   - AMIS
   - SKMS
   - CMIS

3. **The CTO of an IT service provider meets quarterly with the CFO of a third-party supplier. What category does this supplier likely fall into?**
   - ✓ Strategic
   - Tactical
   - Operational
   - Commodity

4. **Think of some problems that could result from poor Supplier Management. What actions can an organization take to make sure that the best possible suppliers are being contracted?** making promises can't keep need suppliers can count on

---

Summary

This lesson focused on Service Design of the IT Service Lifecycle. Taking a holistic approach to all aspects of design helps you match your services to your clients in the most efficient manner possible.

Think about a particular aspect of service delivery at your organization, or one that you are familiar with. Of the processes in Service Design, which do you believe your business could improve upon to improve the delivery of this service?

What is the result of an organization underestimating the usage of a particular service, or overestimating the usage of the service? What actions can an organization take to prevent these problems from occurring?

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

4 Service Transition

Lesson Time: 2 hours, 15 minutes

Lesson Introduction

Now that you can describe the purpose and objectives of Service Design in the IT Service Lifecycle, it is important to understand how to properly manage the changes to your services in order to maintain and increase value. Therefore, it's not only important to deliver the changes that your customers require as they require them, but it is also important to deliver them as efficiently and as effectively as possible. In this lesson, you will describe Service Transition as part of the IT Service Lifecycle.

IT services never get deployed permanently; the world of IT services is constantly changing, as new technologies are developed and older ones are deprecated, and existing contracts with providers end with new ones taking their place. Customers will never want to see their services interrupted while you make your transition. Therefore, understanding how to adapt, change, and improve services that go from testing to deployment is critical for continued, smooth operation.

Lesson Objectives

In this lesson, you will describe Service Transition in the IT Service Lifecycle. You will:

- Describe the basic concepts of Service Transition.
- Describe the Transition Planning and Support process.
- Describe the Change Management process.
- Describe the SACM process.
- Describe the Release and Deployment Management process.
- Describe the Knowledge Management process.

TOPIC A

Basic Concepts of Service Transition

Several of the Service Transition processes directly support the complete IT Service Lifecycle, while other Service Transition processes are specifically focused on Service Transition activities. In this topic, you will identify the purpose, objectives, processes, and activities of Service Transition.

Imagine that you are on your typical commute to work and discover that a road is closed, with no advance notice or detour signs. If you are familiar enough with the area, you might be able to find another route without much trouble. However, others might have problems or get stuck in traffic while finding another solution. This is similar to the trouble that can result from poor Service Transition processes. A release of a new or changed service must meet the needs of users without causing confusion or creating disruptions. By understanding the factors that contribute to a successful Service Transition, you can ensure that new releases of services satisfy user needs and are well supported.

Service Transition

The Service Transition stage of the IT Service Lifecycle consists of the management of all processes, systems, and functions that are needed in order to build, test, and deploy new or changed services into a live environment. Service Transition is responsible for implementing the services identified and developed within Service Design processes, based on specific customer requirements. In this sense, the transition is the progression of the service from its design to its actual operation.

Service Transition at Rudison

Rudison Technologies has determined that an upgraded version of its current email program may add value to the service being provided to its clients. However, this upgrade will impact many different configuration items. It will involve updating all client machines; the servers; the databases that are connected to the email program; and processes that are used to manage accounts, licenses, and documentation, at the very least. Service Transition contains the processes that will guide the progress from the design of the changed service to its actual usage in a live environment.

Purpose, Objectives, and Scope of Service Transition

ITIL describes the purpose, objectives, and scope of Service Transition as shown in the following table.

Category	*Description*
Purpose	The purpose of Service Transition is to ensure that new, changed, and retired services are successfully delivered as documented in Service Strategy and Service Design. Customer satisfaction through a smooth transition of services and providing value to the business are goals of Service Transition.

Category	Description
Objectives	The objectives of Service Transition are to: • Set customer expectations on how the performance and the use of the new or changed service can be used to enable business change. • Plan and manage service changes into a live environment within the predicted cost, quality, and time estimates. • Reduce the known errors and minimize the risks from transitioning new, changed, or retired services. • Increase the customer, user, and service management staff satisfaction with the Service Transition practices, including deployment of the new or changed service, communications, release documentation, training, and knowledge transfer. • Increase proper use of the services and underlying applications and technology solutions. • Provide clear and comprehensive plans that enable the customer and business to change projects to align their activities with the Service Transition plans. • Ensure that the service can be used in accordance with the requirements and constraints specified within the service requirements. • Ensure there is minimal unpredicted impact on the production services, operations, and support organizations.
Scope	The scope of Service Transition encompasses all aspects of introducing new or changed services into the live environment, and might involve some coordination of project management activities to efficiently and effectively transition the new, changed, and retired services.

Value of Service Transition to the Business

Effective Service Transition enables the service provider to align the new or changed service with the customer's business requirements and business operations, and ensure that customers and users can use the new or changed service in a way that maximizes value to the business operations. Service Transition adds value to the business by improving:

- The ability to adapt quickly to new requirements and market developments.
- Transition management of mergers, de-mergers, acquisitions, and transfer of services.
- The success rate of changes and releases for the business.
- The predictions of service levels and warranties for new and changed services.
- Confidence in the degree of compliance with business and governance requirements during change.
- The variation of actual against estimated and approved resource plans and budgets.
- The productivity of business and customer staff because of better planning and use of new and changed services.
- Timely cancellation or changes to maintenance contracts for hardware and software when components are disposed or decommissioned.
- Understanding of the level of risk during and after change.

Service Transition Processes

The scope of Service Transition involves the coordination of seven different processes, five of which are addressed in the ITIL Foundation syllabus and certification.

- **Transition planning and support** is the overarching process that maintains the plans for all of the service transitions and coordinates the resources that are needed for Service Transition.

- The **change management process** ensures that all changes are implemented in a standardized manner. Changes must be evaluated, prioritized, approved, tested, and documented before being made available to users.
- **Service asset and configuration management (SACM)** establishes control over the physical IT infrastructure by defining all Configuration Items (CIs) and maintaining configuration records in a centralized place.
- **Release and deployment management** oversees the building, testing, and delivery of the services, and also determines the best way to deploy new releases to the user base.
- **Knowledge management** aims to improve both the speed and quality of decision-making by aggregating knowledge previously dispersed across the organization into a central location that can be accessed by anyone who needs it.
- **Change evaluation** seeks to conduct a formal assessment of the changes and to determine if they successfully managed the risk or created the intended improvement. This process is not addressed in the ITIL Foundation Syllabus.
- **Service validation and testing** is designed to verify that the new IT service aligns with the design requirements of the organization's business needs. This process is not addressed in the ITIL Foundation Syllabus.

ACTIVITY 4-1

Discussing Basic Concepts of Service Transition

Scenario

In this activity, you will discuss basic concepts of Service Transition.

---

1. **Which of the following is an objective of Service Transition?**
   - ○ To develop strategies on what the business needs and what it does not.
   - ○ To develop a strategy for restoring normal service operation as quickly as possible following a disruption.
   - ○ To continually realign IT services to changing business needs.
   - ✓ To plan and manage the resources to establish a new or changed service into production within constraints.

2. **Which of the following processes of Service Transition manages the building, testing, and delivery of new or changed service components?**
   - ○ Change management
   - ○ SACM
   - ✓ Release and deployment management
   - ○ Knowledge management

3. Which of the following tools, resources, or systems might support service transition in the IT service lifecycle?
   1. A repository of definitive versions of software.
   2. A workflow tool for managing changes.
   3. A method for automatically distributing software updates.
   4. Validation and testing tools.

   Select the correct answer.
   - ✓ All of the above
   - ○ 1, 3, and 4 only
   - ○ 1, 2, and 3 only
   - ○ 2, 3, and 4 only

TOPIC B

The Transition Planning and Support Process

As one of the seven Service Transition processes, the Transition Planning and Support process is the overarching process that coordinates all of the Service Transition processes and the resources that are required for each service transition.

Transition Planning and Support

Throughout the Transition Planning and Support process, the IT service interfaces with the Change Management and the Release and Deployment Management processes to coordinate and successfully transition the changed service into the live environment.

The Service Transition Manager owns the Transition Planning and Support process and is responsible for ensuring that the objectives are met and the transition teams are supported.

Purpose, Objectives, and Scope of Transition Planning and Support

Purpose: The purpose of Transition Planning and Support is to provide an integrated planning approach to ensure Service Transition plans are aligned with customer, supplier, and business change plans.

Objectives:

- Identify, plan, and coordinate resources.
- Manage and oversee the transition activities of suppliers, teams, and projects.
- Manage transition activities in supported environments within the cost, quality, and time constraints.
- Modify or create systems and tools, technology, management architectures, service management process, metrics, and measurement methods to satisfy the requirements as specified in the Service Design Package.
- Ensure that a common framework is used for the planning, coordinating, and standardizing of Service Transition processes.
- Communicate the transition plans so that customers and projects are able to align their activities to the Service Transition plan.
- Identify and manage risks that might be problematic for the Service Transition activities.
- Inform stakeholders of issues, risks, and deviations that occur and provide the necessary information.
- Monitor the performance of the Service Transition process in an effort to make iterative improvements.

Scope: The Transition Planning and Support is focused on coordinating and overseeing the transition process, including the following:

- Maintain policies and standards applied throughout the transition.
- Provide guidance for new services and major changes through the transition.
- Coordinate and prioritize resources and required management to handle multiple transitions at the same time.
- Plan for future transition requirements.
- Review activities for performance improvement opportunities.
- Coordinate the transition and planning process with business program and project processes and activities taking place in the Service Design stage.

Activities of the Transition Planning and Support Process

To meet the Transition Planning and Support process objectives, the scope of activities involved ranges from planning the transition strategy to communicating with stakeholders. These activities can be grouped into four main categories:

- **Strategize**: Set up the transition strategy.
  - Budget and allocate resources.
  - Prioritize any conflicting resource requirements in an effort to keep the process moving forward.
- **Prepare**: Analyze and accept input from other Lifecycle stages.
  - Receive and handle inputs from other processes, such as Requests for Change (RFC).
  - Organize the Service Transition activities in conjunction with the program and project management, Service Design, and development activities.
- **Plan and Coordinate**: Describe the activities in Service Transition.
  - Lead the changed and new services through all of the Service Transition processes.
  - Enable multiple transitions to go through the Service Transition process simultaneously by organizing and coordinating the necessary activities.
- **Support**: Provide support to stakeholders.
  - Maintain the documentation of the policies, standards, and models used in Service Transition activities and processes.
  - Review and improve the performance of Service Transition activities.
  - Communicate plans to stakeholders.

ACTIVITY 4-2

Discussing the Transition Planning and Support Process

Scenario

In this activity, you will discuss the transition planning and support process.

---

1. **Which process is responsible for maintaining the overarching plan and coordinating the resources necessary for the transition?**
   - ○ Change management
   - ✔ Transition planning and support
   - ○ Knowledge management
   - ○ Release and deployment management

2. **What is the purpose of transition planning and support?**

   make sure pallning and apporaches to allign with cusomer

3. **A deployment manager sends an email to the user base to let them know a rollout will be delayed. Which Transition Planning and Support process objective does this represent?**
   - ○ Coordinate resources.
   - ○ Manage cost, time, and quality constraints.
   - ○ Modify systems and tools.
   - ✔ Inform stakeholders of risks and deviations.

TOPIC C

The Change Management Process

Some IT professionals may be aware of the saying, "Necessity is the mother of invention." In the context of Service Transition, this means that the request for a new or changed service is driven by the needs of the customers. Therefore, a change request or an output from the Continual Service Improvement efforts are often the catalysts for triggering Service Transition processes, with the change management process at the core of Service Transition. In this topic, you will examine the principles of change management, the different types of change, and the activities involved in managing change.

Many IT professionals are disenchanted with change control processes. Some processes are too restrictive, and some are too lax. ITIL's framework gives many IT professionals a change management process model that was designed and tested thoroughly through experience. A well-implemented change management process provides users with a means of requesting changes to services while at the same time, providing a structured means for the service staff to manage change requests.

Change

A *change* is the addition, removal, or modification of anything that is used to provide an IT service. A change can range from anywhere between the installation of hardware or software, to the modification of a process used within the organization.

Figure 4-1: Typical changes to an IT service.

Green Technology

Fuller & Ackerman Publishing has traditionally handled employee scheduling and managed availability through paperwork. In the interest of becoming more environmentally conscious and cutting the cost of paper usage, the company has decided to implement a centralized electronic system in which employees can check schedules and manage availability. This change benefits users by providing ready access to needed information, while also reducing office supply consumption.

Change Management

Change management is the process that manages how changes are considered and transitioned in a controlled manner. This process oversees the evaluation, prioritization, planning, testing, implementation, and documentation of requests for change (RFCs). The purpose of the change management process is to control the lifecycle of all changes, enabling beneficial changes to be made with minimum disruption to IT services.

The change management process does not guarantee that changes to IT services will not cause any additional issues or solve all existing problems. Rather, the goal of change management is to minimize the risks involved in making changes, while adding the greatest amount of value to the service. It can be one of the most difficult processes to establish in the IT world due to the amount of input required from everyone involved in the support of IT services.

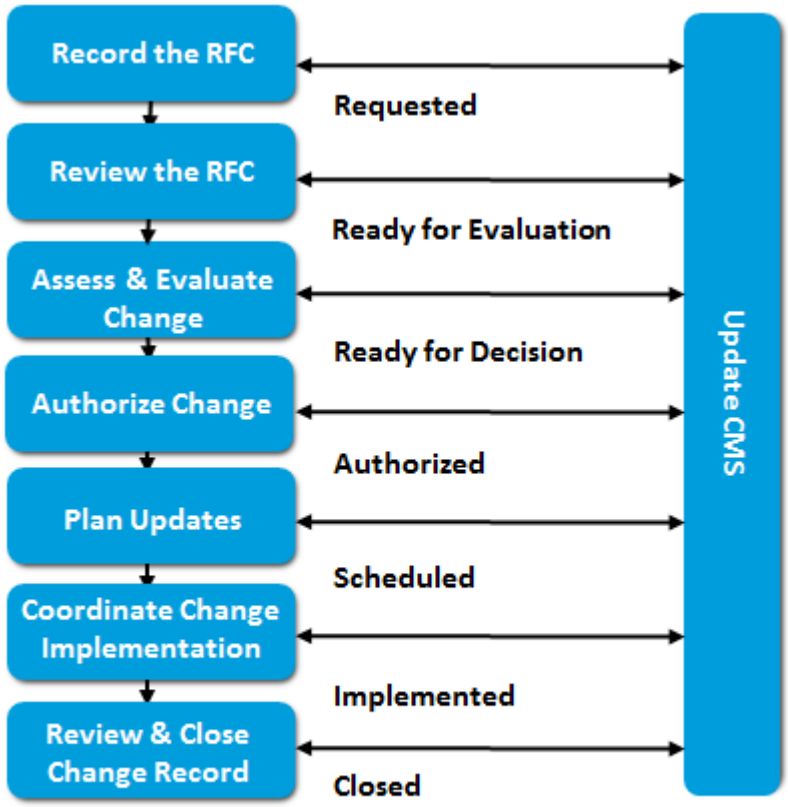

Figure 4-2: The change management process.

Purpose, Objectives, and Scope of Change Management

Purpose: According to the ITIL guidance, the purpose of Change Management is to control the lifecycle of all changes that enable beneficial changes to be made with minimal disruption to IT services.

Objectives:

- Be aware of changes in the business environment to reduce incidents, service disruptions, and rework.
- Ensure that IT service changes continue to align with the organizational business needs.
- Record and evaluate changes, and ensure that authorized changes are prioritized, planned, tested, implemented, documented, and reviewed in a controlled manner.

- Maintain an accurate Configuration Management System (CMS) by updating configuration item changes.
- Optimize risk for the business. This might mean accepting risk when the benefits of a change are greater than its risk.

Scope: The scope of change management is broad and encompasses the architecture and infrastructure of processes, documentation, metrics, and tools. Change management also covers changes to IT services and configuration items throughout the lifecycle, and changes to any of the five aspects of Service Design. Each organization will define what is and is not within the scope of change management, and the key is for everyone to clearly understand the scope.

Knowing what is outside the scope of change management is also important, and this might include changes that impact the business beyond services such as changes to departmental structures, business policies, or operations. Additionally, routine operational changes such as printer maintenance might also be considered outside the scope of the change management process.

Change Process Models and Workflows

A change process model is a way of predefining the steps that should be taken to handle a process for dealing with a particular type of change in an agreed-upon way. This process model, or workflow, typically outlines:

- Steps that should be taken to handle the change, including handling issues and unexpected events.
- Chronological order in which these steps should be taken, with any dependencies or co-processing defined.
- Responsibilities, including who should do what.
- Timescales and thresholds for completion of the actions.
- Escalation procedures.

Proactive and Reactive Change

Changes can be made for a wide range of reasons, but most fall within one of two categories. A *proactive change* is a change that is made before a problem or inefficiency has occurred. It is typically aimed at improving the benefits of a service, such as reducing cost, increasing usability, or enhancing the effectiveness of support. A *reactive change* is one that is made in response to a problem. This type of change is generally aimed at correcting an error or addressing an interruption.

Instances of Proactive and Reactive Change

An example of a proactive change would be the development and release of an improved graphical user interface (GUI) to make an application easier to use. A reactive change, on the other hand, could be the development of a patch to a recent release of an application that has significant bugs in the code, which results in the program crashing.

Strategic, Tactical, and Operational Change

Changes may affect the business, service provider, or supplier, and are strategic, tactical, or operational in nature.

- A *strategic change* is aimed at achieving a specific objective at the lowest possible cost and risk. This might include a change to user activity patterns, or the service portfolio, contract portfolio, policy and standards, or legal regulations.
- A *tactical change* is a change that applies to services within the service catalog or within development. This would include changes to the service definition, resource requirements, SLAs, utilization, or service assets.

- An *operational change* is a change that affects operations and is dependent on the nature of the organization. For instance, re-booting a server will have a short-term impact on services using that server.

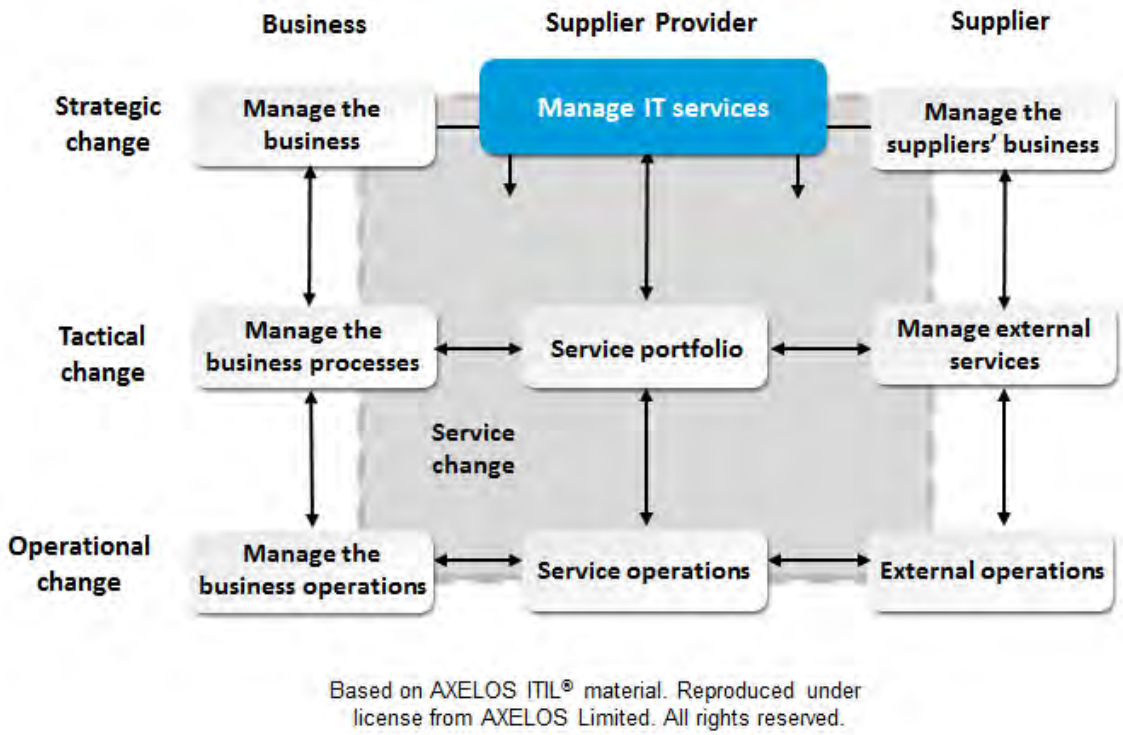

Figure 4-3: Strategic, tactical, and operational change.

Request for Change

A *change request* is a formal communication seeking an alteration to one or more configuration items. This could be in the form of a *request for change (RFC)* document, a Change Proposal (a high-level description of a significant proposed change), Service Desk call, or a Project Initiation Document (PID). Different types of change may require different types of change requests. An organization needs to ensure that appropriate procedures and forms are available to cover the anticipated requests.

Types of Change Requests

Most change requests typically fall into one of the following categories:

- Changes to the service portfolios may include a new portfolio line item or an alteration to the portfolio's scope, business case, or baseline.
- Service improvements may involve changes in existing or future service attributes, a change that affects the Service Design, or changes to the service definition.
- Changes that have no impact on the service or design baseline may be something such as a user access request, planned maintenance (such as a reboot of failed hardware), or a project change proposal.

	Note: To learn more, check out the LearnTO **Create a Request For Change Document** presentation from the **LearnTO** tile on the CHOICE Course screen.

Types of Change

ITIL describes three different types of change.

Change Type	Description
Normal change	The addition, removal, or modification of an authorized service component and its related documentation. Authorized in this case would mean a normal change request that has progressed through the normal change process model. An example is a request to enhance a proprietary application to include a new feature.
Standard change	A pre-approved, low-risk change that occurs on a relatively frequent basis. These changes are generally well-documented, and no budgetary permission is needed for each instance of the change operation. These are generally low-risk change decisions that do not require additional approval or formal change process steps. An example of a standard change is the installation of a company-approved software program.
Emergency change	A change that needs to be made as soon as possible. Time is of the essence when dealing with an emergency change. An emergency change still goes through the normal change process model, but only at an expedited pace, and because of this, some steps might occur out of order, such as documentation. An example is repairing or replacing a failed component essential for providing the IT service.

The Change Advisory Board

A *Change Advisory Board (CAB)* is a panel of personnel who convene on a regular basis using a structured meeting agenda to help the Change Manager assess, prioritize, and schedule any necessary changes to one or more IT services. The CAB typically consists of users, managers, and IT representatives. Organizations sometimes create a subset of the CAB called the *Emergency Change Advisory Board (ECAB),* which is organized to make emergency streamlined decisions when they are required.

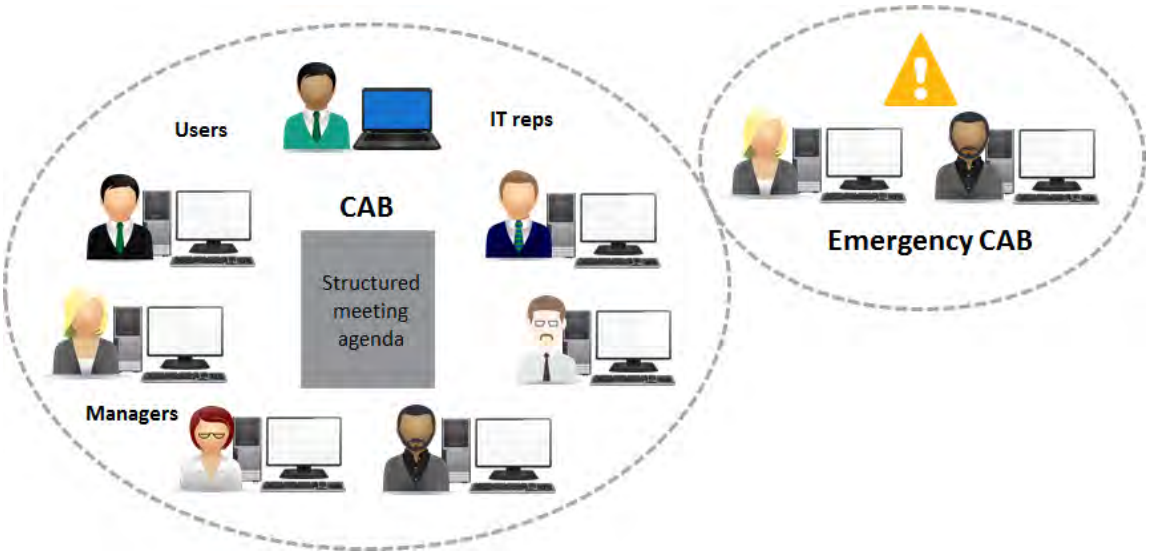

Figure 4–4: The ECAB is a subset of the CAB.

Documents of Change Management

A few documents help to coordinate the change management process.

- The **Change Schedule (CS)** is a document that lists all authorized changes and their planned implementation dates, as well as estimated dates of longer-term changes. A change schedule is sometimes called a forward schedule of change even though it also contains information about changes that have already been implemented.
- The **Projected Service Outage (PSO)** document describes the impact that the change will have on service levels and availability. Planned downtime should be scheduled at a time when it will cause the least amount of interruption.
- A **Change Proposal** is a high level explanation of a significant proposed change or introduction of a new service. The records, status, and actions based on this document are noted on a **Change Register**.
- Less impactful changes to IT services are presented via a **Request for Change (RFC)** document. Both document types are used by change management to review, evaluate, and authorize. As with the **Change Proposal**, the records, status, and actions of the RFC are also noted on a **Change Register**.

Change Evaluation Process and Post Implementation Review

The change evaluation process seeks a formal assessment of a new or changed IT service to ensure that risks have been managed and to help determine whether to authorize the change. A Post Implementation Review (PIR) is part of the change evaluation process as a post-change assessment that is conducted in order to ensure that the change has met its objectives. The PIR typically involves the initiator of the change, the stakeholders affected by the change, and sometimes the CAB. Members involved in the PIR confirm that no unexpected side effects have been introduced by the change, and may even document lessons learned during the implementation for future changes.

Server Migration

The IT staff at Rudison Technologies has just decommissioned an old network server and moved all files to a newer server. After the change is complete, a PIR is conducted, which includes the technician who performed the change, a group of users who require access to the server, and a representative of the CAB. Everyone confirms that the new server is operational, can be accessed by clients, and that all data was migrated properly to the new server.

Activities of Change Management

Six key activities are associated with change management.

Activity	*Description*
Create and record	The process begins when a requester submits an RFC. This document must be identifiable and is recorded and logged.
Review the request	The request is investigated by members of the IT Service Desk or other stakeholders. The RFC is reviewed to make sure it is logical, feasible, complete, and has not already been submitted.
Assess the change	The Change Manager or CAB determines whether the change should be made. This decision is based on the impact of the change, a risk analysis, and a cost-benefit analysis. Recommendations are then made to the Change Authority, which can be the CAB itself, a Change Manager, or another person with decision-making authority.

Activity	*Description*
Authorize the change	Provided that the RFC meets all criteria, it receives formal authorization. Authorization often reflects the amount of risk it entails. *Remediation* planning should be conducted in order to explicitly address the issue of what to do if the change is unsuccessful.
Coordinate implementation	Once the change request is approved, the coordination begins. The actual work is completed during the release and deployment process, which begins at this point. The details and requirements of the change are forwarded to experts, who then build, test, and deploy the change.
Review and close	The implemented change is evaluated after being rolled out. This evaluation process seeks to ensure that the change has met its objectives and has not introduced any problems. If all is well, it can be closed.

Metrics of Change Management

Some statistics can be used to gauge the effectiveness of the change management process.

- The number of changes made relative to the number of feasible and realistic changes requested by clients can serve as an indication of how well the service provider is responding to customer needs.
- The number of successful changes compared to failed or unsuccessful changes may indicate how adequately the Service Transition team has prepared for the transition of the new change.
- A low number of interruptions is the result of good planning and proper testing before deployment, while a higher frequency of disruptions suggests that users are having trouble adjusting to the new or changed service release or that the new release was not tested rigorously enough.

Indicators of Poor Change Management

Indicators of poor change management can be equally as valuable as measures of good change management. The top indicators that suggest the need for improvements in the change management process include:

- Unauthorized changes to configuration items.
- Unplanned service outages.
- A high number of emergency changes being logged.
- Frequent delays in the change schedule document.

ACTIVITY 4-3

Discussing the Change Management Process

Scenario

In this activity, you will discuss the change management process.

---

1. **Which of the following is the best example of a standard change?**
   - ○ A user reports a couple of bugs to be addressed in the next release of a proprietary program.
   - ○ An email server goes down and needs repair.
   - ○ A user requests that the company switch to a more reliable supplier.
   - ✔ A user requests to have a software package installed on his PC.

2. **True or False? The IT Service Desk releases an updated version of a proprietary application after multiple users have logged defects about an applet it uses. This is an example of a proactive change.**
   - ☐ True
   - ☑ False

3. **What are some of the metrics that can be used to gauge the effectiveness of the change management process?**

   how many outages/ incident reviews / number of change request and actual change comparisons - succesful and not

---

TOPIC D

The Service Asset and Configuration Management Process

The change management process puts a framework in place for determining which changes are the most critical for the organization to address. Prior to any changes made, all the assets used to deliver and manage the service must be accounted for; once changes are in place, information regarding the new configuration items will need to be updated accordingly. In this topic, you will examine the importance of the SACM process.

What happens when two people attempt to cook the same meal by using two different cookbooks with different ingredients? Or what if you were uncertain as to which container of cream is the most recently purchased, when each will expire, and what level of milk fat is in each? The results will likely appear and taste differently. When changes are made to CIs, and the documentation and configuration records are not updated accordingly, the same thing can happen when someone attempts to configure a service component. If changes are made to particular assets or CIs, but this information is not recorded and documented, then the result will be inconsistencies in the way that CIs are configured. The SACM process mitigates this problem by accurately maintaining information about assets and CIs in a central location.

Service Asset and Configuration Management

Service asset and configuration management (SACM) is the process responsible for managing both the service assets and all CIs. The goal of SACM is to establish control over the physical IT infrastructure by defining the infrastructure components and maintaining configuration records. *Asset management* covers the inventory of assets from acquisition to disposal and deals with the value and depreciation of those assets. Configuration management aims to account for, manage, and protect the integrity of CIs required to deliver an IT service, as well as their relationships to other CIs.

Figure 4-5: SACM.

Purpose, Objectives, and Scope of Service Asset and Configuration Management

Purpose: The purpose of Service Asset and Configuration Management is to control and manage the assets that are required to deliver your services, including maintaining accurate, meaningful, and relevant information about the asset configurations and the relationship between assets.

Objectives:

- Identify and properly manage the assets in the IT department's control.

- Gather information about the provided services, including identifying, controlling, and recording the services and configuration items.
- Manage the integrity of the configuration items.
- Establish and maintain an accurate Configuration Management System (CMS).
- Maintain information about the configuration items—the current, historical, and planned states.
- Support efficient and effective service management processes by maintaining and providing information to enable accurate decision making regarding services.

Scope: The scope of Service Asset and Configuration Management includes managing all configuration items throughout their lifecycle.

Configuration Items

A *configuration item (CI)* is any specific component that is used in the delivery of an IT service. It can be in the form of a server, a piece of hardware or software, an application, documentation, or even staff. The primary purpose of identifying CIs is to establish a level of asset and configuration control across the organization, so that personnel from all departments can agree on the definition of a component. Establishing CIs also helps to reduce incompatibility issues with other CIs.

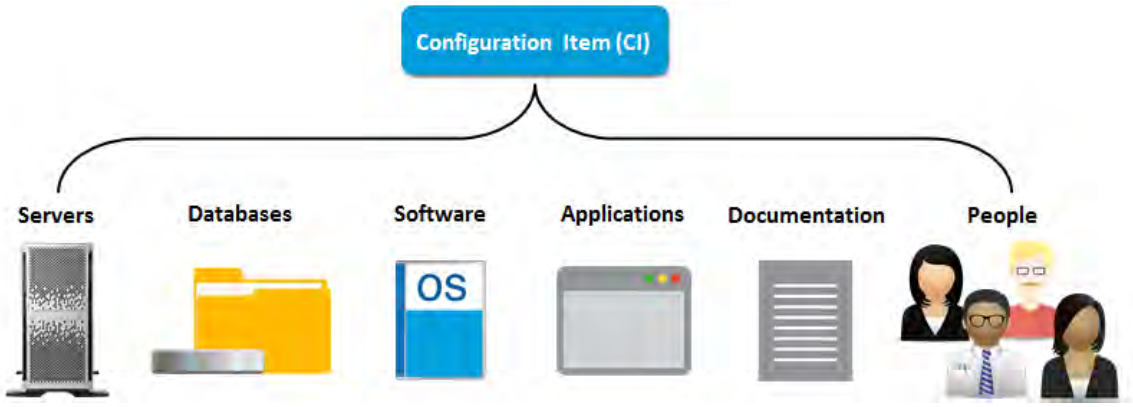

Figure 4-6: Types of CIs.

Software and Its Setup Guide are Both CIs

Software installations are typically accompanied with a setup guide, which the company may customize for its users. The software program itself is a CI, as it is a component that is necessary to deliver a service. However, the setup guide is also considered to be a CI, as it is a component that facilities the installation of a program that is needed to deliver a service. The release of a new version of this software would require updating not only the program itself, but the documentation as well.

Automated Installations

Automated installations are an excellent alternative to providing a setup guide for users when installing a specific program. When implemented properly, automated software installations can produce consistent, error-free installations.

Logical Model of Configuration Management

The power of configuration management's logical model of services and the infrastructure is that it provides a single common representation that can be used across service management and beyond. This logical representation helps raise awareness of the impact that potential changes can have on other CIs and the effect that incidents may have on other areas of the organization. This information improves decision-making with respect to planning new or changed services, software upgrades, deployment options, and the optimization of asset costs and utilization.

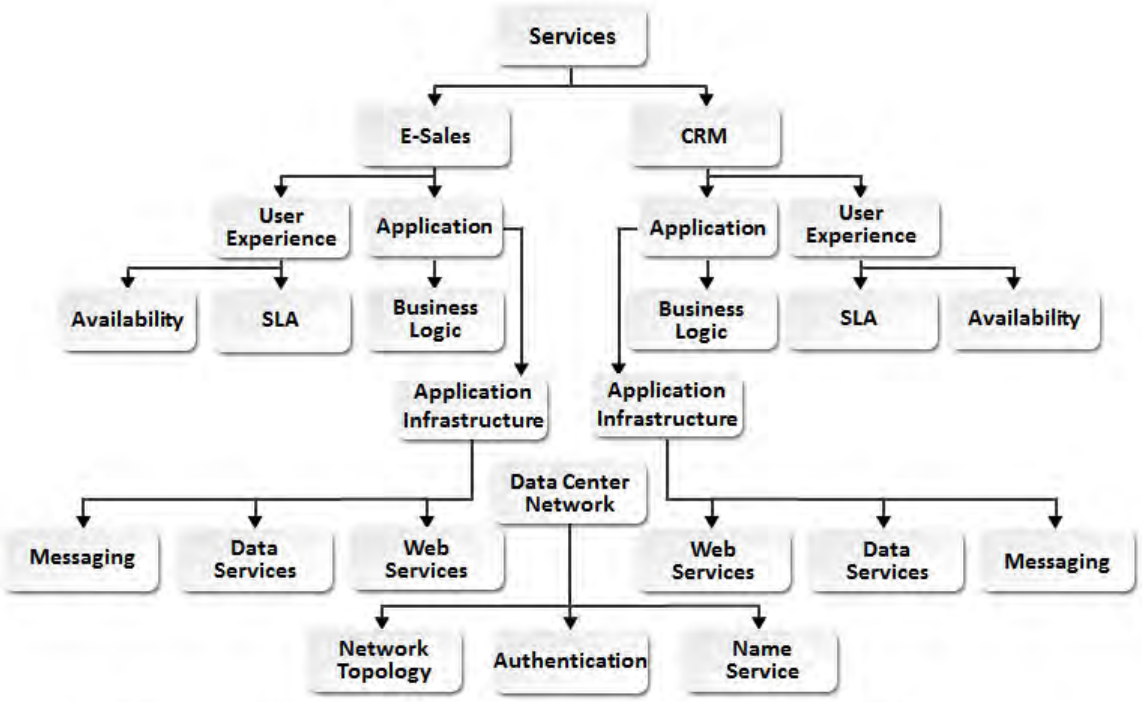

Figure 4-7: A logical model of configuration management.

The Configuration Management System

A *Configuration Management System (CMS)* is a set of tools and databases that contains information about all CIs, including details such as suppliers, SLAs, purchase date, costs, and any contracts. It contains information about incidents, known errors, problems, changes, and releases, and may also store information about employees, business units, users, customers, and locations. In order to manage large and potentially complex IT infrastructures, SACM is dependent on the CMS.

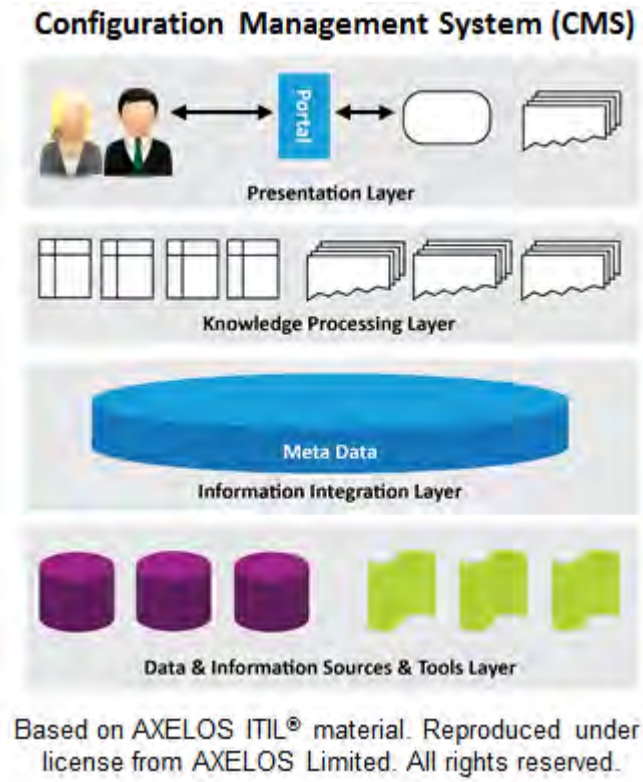

Figure 4-8: The CMS.

CMDB

A *Configuration Management Database (CMDB)* is a database that is used to store the configuration records and attributes of a CI. Typically, the CMS is built from one or more CMDBs.

Layers of the CMS

There are four distinct layers of the CMS.

- The **Presentation Layer** allows interactive use of the data through a GUI or a portal.
- The **Knowledge Processing Layer** is used to generate output from the collected data.
- The **Information Integration Layer** collects information from various sources and makes it viewable to stakeholders.
- The **Data Layer** defines all of the information sources that are required for the CMS.

Definitive Media Library

The *Definitive Media Library* (DML) is one or more physical locations in which the definitive and authorized versions of all software configuration items are securely stored. The definitive media library may also contain associated configuration items such as licenses and documentation. Administered by the Configuration Librarian, the DML is controlled by the Service Asset and Configuration Management process and is recorded in the Configuration Management System.

Configuration Baselines and Snapshots

A *configuration baseline* is the configuration of a service or infrastructure that has been formally agreed upon, and includes the structure, contents, and details of that specific CI. It provides the basis for future activities and may be changed only through the change management process.

A *snapshot* is a static, current state of a configuration at a particular time. It is often used as a marker to be compared to a baseline. Snapshots are often stored in the CMS as historical records for the purpose of analyzing trends.

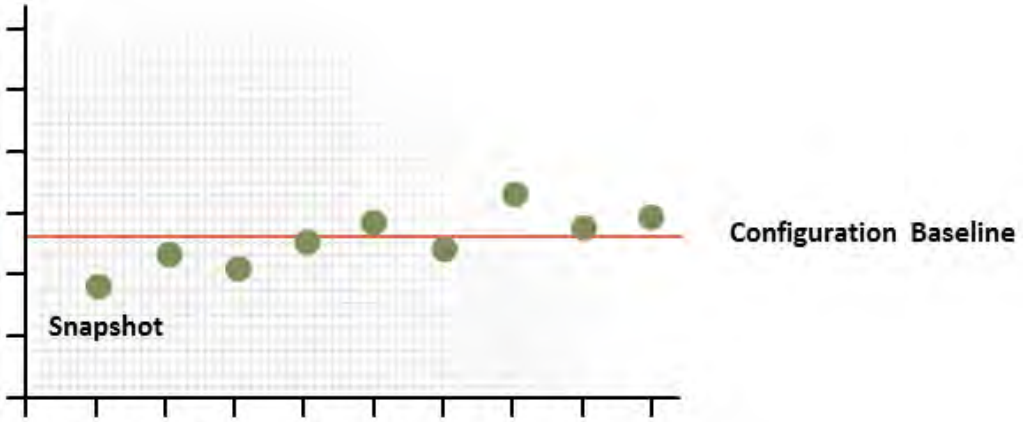

Figure 4-9: A configuration baseline and snapshots.

Activities of SACM

The SACM process is centered in five key activities.

Activity	*Description*
Management and planning	A configuration management plan is created by members of the management team and configuration management team. These groups agree on what level of configuration management is required and how it will be reached.
Configuration identification	This activity focuses on establishing a CI classification system. This system defines the structure and selection of CIs, types of CIs, a CI naming convention, relevant attributes of CIs, relationships between CIs, etc.
Configuration control	All established CIs are carefully controlled. No CIs are added, modified, or removed without following an agreed-upon procedure. An important part of configuration management is deciding the level at which control is to be exercised. Choosing the right CI level is a balance between information availability and the right level of control.
Status accounting and reporting	Here, the status of the CI along its lifecycle is tracked. This can include draft, development, approval, or withdrawal. Documentation about the status of the CI must be available for reporting purposes.
Verification and audit	Periodic audits are performed to ensure that the actual performance is consistent with baseline figures. The release and configuration document is a prerequisite to the CI rollout.

Metrics of SACM

Measuring the effectiveness of the SACM process can be difficult, as there are not many numerical metrics that can easily be used. However, the success of the SACM process is reflected in the quantity and quality of information in the system, and how accurately managers can predict how changes in a service or configuration item will affect other services or groups in the organization. A

well-operating CMS can yield high control over assets, a high delivery of quality of service (QoS), consistent integration of CIs, and up-to-date information.

ACTIVITY 4-4

Discussing the SACM Process

Scenario

In this activity, you will discuss the SACM process.

---

1. **Which of the following is not true of a DML?**
   - ○ It contains authorized versions of all types of CIs such as software, documentation, and multimedia content.
   - ✓ It is freely accessible to all members of the organization.
   - ○ Everything within it has passed QA checks and is approved.
   - ○ Only software that is within it is acceptable for a release.

2. **True or False? A snapshot is a configuration of a service or infrastructure that has been formally agreed upon, and serves as the basis for future activities.**
   - ☐ True
   - ☑ False

3. **Which layer of the CMS allows users to query the system?**
   - ✓ Presentation Layer
   - ○ Knowledge Processing Layer
   - ○ Information Integration Layer
   - ○ Data Layer

4. **What is the primary goal of SACM?**
   - ○ Track expenditures on IT assets.
   - ○ Monitor service outages.
   - ✓ Control the IT infrastructure.
   - ○ Document change requests.

TOPIC E

The Release and Deployment Management Process

SACM helps you to ensure that all components that are required to deliver a service are maintained and configured consistently across the organization. When these components, also known as CIs, are updated, plans must be in place to test them and deploy them to the clients that will use them. In this topic, you will describe the role of the release and deployment management process in Service Transition.

The complete IT infrastructure of an organization is a living, evolving collection of hardware, software, processes, knowledge, and staff that interact together to deliver services. Modifying or creating new CIs can occasionally have unforeseen side effects, such as disruptions to other CIs or services already in place. Should this happen in a live environment, serious problems could arise. The release and deployment process helps ensure that new or changed service components are thoroughly tested and that the migration from a test environment to a live environment causes as little disruption as possible.

Release and Deployment Management

To understand the release and deployment management process, you must be able to draw a distinction between the two terms. A *release* is a collection of new configuration items that are tested and implemented. A release can be a combination of hardware, software, processes, or other components that are required to enable or enhance an IT service. *Deployment* is the activity responsible for migrating the new release to the live environment. The *release and deployment management* process oversees the building, testing, and delivering of the services that are identified in Service Design of the lifecycle. This process ensures that customers can use the new or modified service in a way that supports business objectives.

New Software Release

Fuller & Ackerman Publishing creates web-hosted content through proprietary authoring software. In response to changing demands for improved functionality and commonly used features, the IT staff has prepared a new release of the software. The new version must be built and thoroughly tested before it can be deployed to the user base. The release and deployment management process will oversee the development, testing, and rollout of the new release in order to minimize the trouble of upgrading and getting users accustomed to the new version.

Purpose, Objectives, and Scope of Release and Deployment Management

Purpose: The purpose of Release and Deployment Management is to ensure that the build, test, and deployment of the release is planned, scheduled, and controlled. It is also concerned with maintaining the integrity of existing services as new functionality required by the business is delivered.

Objectives:

- Define and seek agreement on deployment plans with release stakeholders.
- Create and test release packages.
- Make sure the integrity of the software release package and its constituent components is maintained throughout the release.

- Adhere to the agreed-upon release plans and stay on schedule, including the deployment of the software release from the definitive media library.
- Effectively track, install, test, and verify the release package to ensure a controlled delivery of the release.
- Verify that the new or changed service provides the required utility and warranty.
- Record and manage unplanned outcomes, risks, or issues that result from the release.
- Transfer the appropriate knowledge about the release to stakeholders so they are able to correctly use the new or changed service.
- Provide sufficient training to Service Operation functions so they can deliver, support, and maintain the service as required.

Scope: The scope of Release and Deployment Management encompasses the processes, system, and functions required to deliver a release into the live physical and virtual environment, including the packaging, build, test, and deployment. The handover to the service operation teams is also included in the scope of release and deployment management.

Release Units and Release Packages

Note: Release units and release packages are not addressed in the current version of the ITIL Foundation Syllabus. However, they are helpful concepts for understanding the four phases of release and deployment.

A *release unit* is one of the configuration items that are typically released into the live environment together. A single release unit has its own useful function in delivering an IT service, and may be in the form of a PC, a piece of hardware, software, license, or documentation. Release units may vary considerably across an organization, depending on how each segment of the organization defines the scope of a single unit. A *release package* is a structured collection of several release units that are made available to users at one time. All elements of the service must be accounted for, from infrastructure to documentation.

Figure 4-10: A release package and release units.

Release of an Updated Website

Rudison Technologies is in the process of updating its internal corporate website, which contains several pages of recent news and links to commonly accessed resources. In this case, each page that is updated and tested could be considered a release unit, while the release package might be the entire new website along with the documentation describing the release.

Release Policy

In release management, a *release policy* is a set of governing rules about the release process that describes the roles and responsibilities for each stage of the release. Items defined in the release

policy include the acceptance criteria at each stage of the process, the expected frequency of the new releases, and the unique numbering and naming conventions that should be associated with the releases.

Version Number

A very common element defined in a release policy is the version number of each new release. Releases will often fall into one of three different categories:

- Major release: 1.0.0.
- Minor release: 1.1.0.
- Emergency release: 1.1.1.

For instance, a major release from version 2.5.2 would result in version 3.0.0. A minor release at this point would be version 3.1. An emergency change would result in version 3.1.1.

Release Design

The *release design* describes how a release should be distributed to the user base. One major decision to be made about release design is whether to use the big bang approach, in which the release is deployed to all users at once, or a phased approach, in which the release is deployed in waves to different users at different times. Another consideration is whether the release should be pushed or pulled. With the push approach, the release is distributed centrally to each user, typically through automation. In a pull methodology, the release is stored and made available to users who may acquire the release or pull it when they need it.

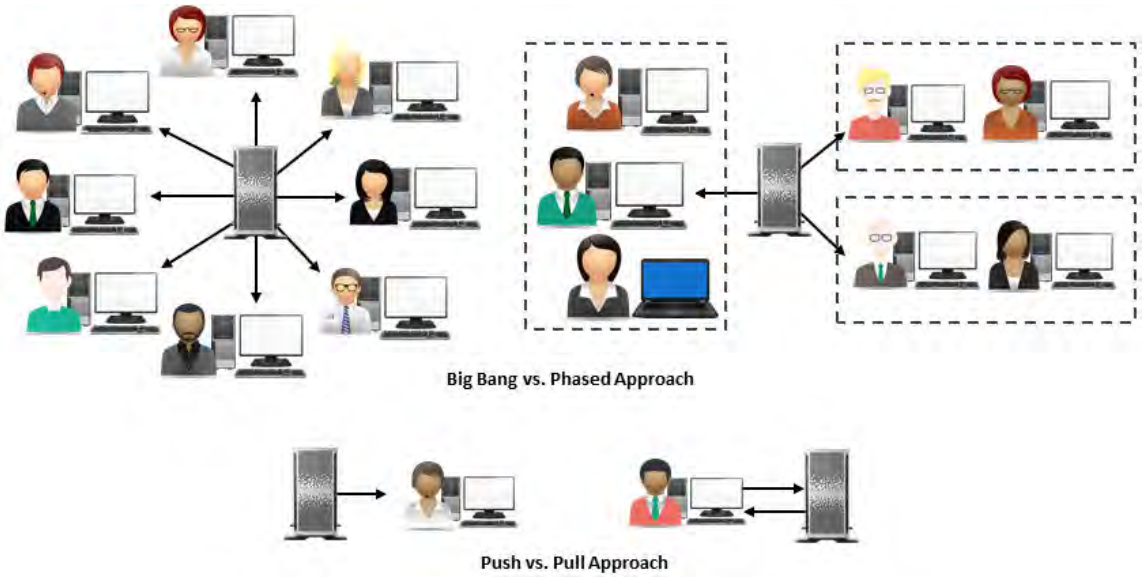

Figure 4-11: Release design approaches.

Pull Approach

The authoring software at Fuller & Ackerman is constantly being updated with minor patches to correct bugs that are reported by users. Periodic releases of new builds are made available to all users, but are not automatically pushed to each client, as automatic installations could interfere with any work in progress. A link is provided so the client may download and install the latest enhancements to the software.

Phases of Release and Deployment

The following table describes the four phases of Release and Deployment.

Phase	Description
Release and Deployment Planning	Developing the plans to create and deploy the release.
Release Build and Test	Building, testing, and checking the release package into the DML.
Deployment	Live deployment of the package in the DML.
Review and Close	Capture feedback, review performance, and identify lessons learned.

Activities of Release and Deployment Management

The release and deployment management process is quite involved and requires a specific set of activities.

Activity	Description
Planning	Before any development can begin, a plan must be formulated for the Service Transition. The size and complexity of the plan is relative to the scope of the Service Transition.
Preparation for building	The service and release design is compared with the specifications of the new or changed service. If it meets all requirements, it is validated and approval is given for building and testing.
Building and testing	This involves the actual creation of the new or changed service. Any required CIs are purchased or acquired from other departments. Consideration is given to the existing infrastructure, relationships to other services, documentation, and release packaging.
Service testing and pilots	The test management team develops a plan for testing the service in a simulated environment, where it will not affect current operations. The team develops test case scenarios and a plan for implementation.
Preparing the deployment	The extent to which the deployment team is prepared to roll out the new release is evaluated through a readiness assessment.
Transfer, deploy, retire	Transfer refers to the outsourcing of an internally provided service or the insourcing of an externally provided service. Deployment consists of the delivery of the service. Retirement refers to the removal of any services that are now obsolete or the decommissioning of any equipment that is no longer needed.
Verify deployment	After the new release is rolled out, activities must be conducted to ensure that the users are not having issues with the new or changed service, and that it is meeting expectations. The service must behave as intended.
Early life support	*Early life support (ELS)* is essential in providing an extra level of support immediately following the deployment of the service. It is expected that users will encounter issues with the new or changed service or have questions about any newly introduced or modified features.
Review and close	This final activity evaluates the effectiveness of the knowledge transfer and the deployment of the service, and ensures that the service performs as expected, user experiences are documented, and all problems or known issues and their associated workarounds are documented as well. If all criteria of the service are met, the service is ready to be transitioned from ELS to production.

Metrics of Release and Deployment Management

The success of the release and deployment management process can be measured from two different angles. First, the success of the planning and deployment activities can be measured by the number of resources required to deploy the new release and by how many resources are required to support the new or changed service. When fewer resources are required to manage the release and deployment of a service, this indicates that processes are reusable and repeatable, and it possibly indicates that users are not having many problems becoming accustomed to the service.

Second, the success of the new release itself can be measured by how many incidents there are when clients use the service, the quality of the service in the eyes of the customers, and the changes in the cost of providing the service after the rollout.

ACTIVITY 4-5

Discussing the Release and Deployment Management Process

Scenario

In this activity, you will discuss the release and deployment management process.

1. **A new release of an in-house application results in changing the version number from 3.5.1 to 4.0.0. What does this likely imply?**
   - ○ This is the fourth time that a release has been issued for the application.
   - ○ This is an emergency change, as denoted by the upgrade to a whole version number.
   - ✓ This is a major release of the application with significant changes.
   - ○ This new release will be pushed to all users through a big bang approach.

2. **The IT service provider is unsure whether a new release should be deployed using the big bang or a phased approach. Which aspect of the release and deployment process does this concern?**
   - ○ Release policy
   - ✓ Release design
   - ○ Release package
   - ○ Release strategy

3. **What is the definition and purpose of early life support?** the support provided for period of time after it has been released immediatley following the release to help smooth the transition

TOPIC F

The Knowledge Management Process

Release and deployment management helps you roll out releases of new or changed services to users with as few bumps in the road as possible. Knowledge of all types of CIs, including hardware, software, setup procedures, processes, troubleshooting, or best practices, is typically scattered among different areas of an organization. In this topic, you will describe the purpose and goals of the knowledge management process in Service Transition.

Knowledge is rarely gained through the acquisition of facts. Knowledge is acquired by combining information with experiences and is applied to a particular context to make a sound decision. It sometimes takes a lot of trial-and-error or mistake-making in order to acquire knowledge about a process, a program, or a service component. Therefore, it is imperative that the knowledge collected from members of the organization is aggregated and centralized so others may avoid making the same errors in judgment. Successful knowledge management allows staff members who may not be as experienced as others to make quick and good decisions by referring to the organization's collective pool of knowledge.

Knowledge Management

Knowledge management is the process by which knowledge is gathered, analyzed, stored, and shared across an entire organization and across the IT Service Lifecycle and other core publications. A major factor for the success of Service Transition is the speed at which quality decisions can be made regarding IT services. When dispersed knowledge across the organization is centralized in one location, the right information can be made available to the right people at the right time. This allows the experiences of all staff to be combined so any information and knowledge acquired can be shared with other personnel for future reference.

Known Issue Knowledge Sharing

Employees at Rudison Technologies have been using a new version of a content publishing system for about three months. As more and more users become familiar with the program, the list of known issues with the program grows. Many users are able to find workarounds to these issues. The IT Service Desk creates an internal database of known issues and solutions for these roadblocks, so users who are just learning the program can find a quick answer to a problem instead of re-learning a known fix.

Purpose, Objectives, and Scope of Knowledge Management

Purpose: The purpose of Knowledge Management is three-fold.

- To share perspectives, ideas, experience, and information.
- To enable informed decisions by making the shared information available in the right place at the right time.
- To improve efficiency by re-using information.

Objectives:

- Improve the quality of decision making throughout the lifecycle.
- Ensure that staff clearly understand the value of the services they are providing. This is done by business and IT communities within an organization.
- Maintain a service knowledge management system (SKMS).
- Establish a repeatable mechanism for gathering, storing, and analyzing knowledge, information, and data to enable efficient support of services.

Scope: Knowledge Management is applicable throughout all stages of the service lifecycle. In addition, the ability to communicate and share the acquired knowledge, data, and experiences is critical to the success of service management.

The DIKW Model

Knowledge management is often represented using the *Data-to-Information-to-Knowledge-to-Wisdom (DIKW)* Model. This structure reveals that:

- **Data** is nothing more than raw events and statistics that are gathered and stored in a variety of sources.
- **Information** is the result of organizing the data in a specific way and adding context to it.
- **Knowledge** is combining information with the experiences, ideas, and insight of everyone in the organization.
- **Wisdom**, the highest level of the structure, is the application of knowledge and contextual awareness to make strong common sense judgments.

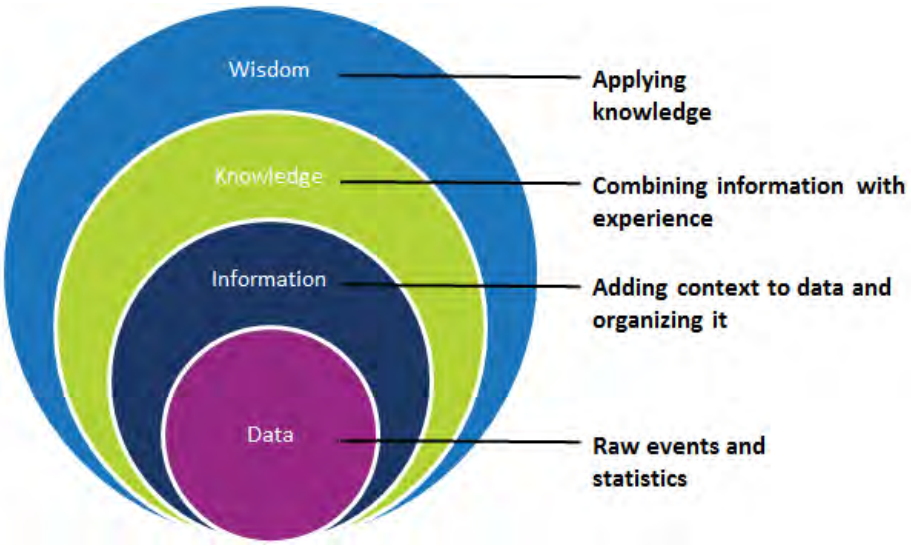

Figure 4-12: The DIKW structure of knowledge management.

The SKMS and Its Relation to CMS

Effectively sharing knowledge across the organization requires the development of a *Service Knowledge Management System (SKMS)*. The SKMS is a collection of tools and databases that are used to manage information, and therefore, knowledge. Typically, data is held within one or more CMDBs, which are organized in a systematic fashion to create the CMS. The CMS is the foundation of the SKMS, although the SKMS also contains higher-level information such as the skills and experiences of staff; information about peripheral issues, such as user behavior; and the expectations of suppliers and partners.

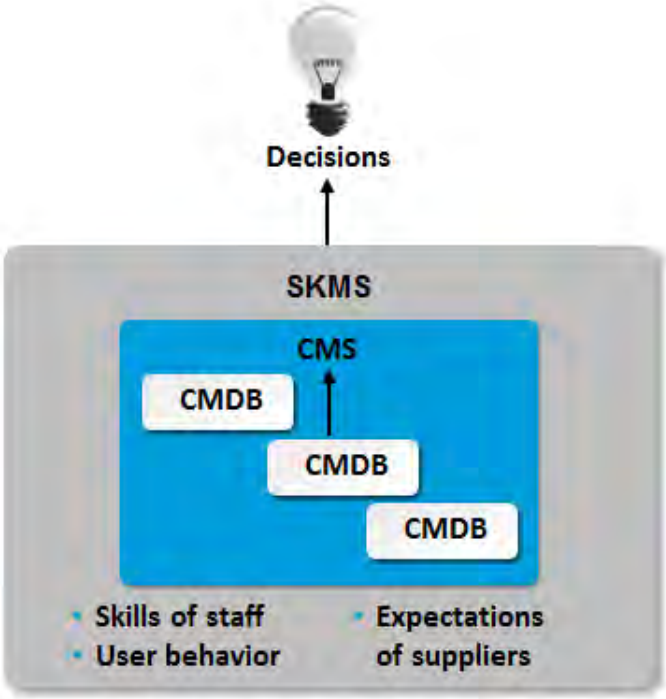

Figure 4-13: The SKMS.

Activities of Knowledge Management

Effective knowledge management requires the following activities and techniques.

Activity	*Description*
Knowledge management strategy	The organization must have an overall strategy and approach to knowledge management. This should focus on identifying and documenting the knowledge and identifying the data sources that will support this knowledge base.
Knowledge transfer	First, you need to determine what gaps there are between the knowledge within a specific segment of the organization and those who will need this knowledge. Only then can you devise a communication improvement plan to facilitate the knowledge transfer.
Information management	This step involves determining data and information requirements, outlining the information architecture, creating data and information management procedures, and then monitoring them for improvement. The infrastructure and categorization of the information is considered as well.
Develop and maintain SKMS	The SKMS will be based heavily on the CMS, but will also contain higher-level knowledge as well. Careful consideration must be given about how to make the SKMS available to all of those who need it, as some users may be in different time zones or have varying hours of operation.

Metrics of Knowledge Management

Knowledge management allows information about IT services to be shared across the organization, which allows people to make sound decisions in a shorter amount of time. As such, a few measures that may indicate the success of knowledge management might be a decrease in the number of support requests, a decrease in the cost of training, and a reduction in the average time required to diagnose and remedy a problem.

ACTIVITY 4-6

Discussing the Knowledge Management Process

Scenario

In this activity, you will discuss the knowledge management process.

---

1. **True or False? The goal of knowledge management is to ensure that knowledge is dispersed across an organization and made available only to those departments that use it.**
   - ☐ True
   - ☑ False

2. **Which statement regarding the hierarchy of knowledge management is accurate?**
   - ○ The SKMS is the foundation of the CMS.
   - ○ Several CMSs feed into CMDBs, which create the SKMS.
   - ○ The SKMS is built upon a collection of CMSs.
   - ○ Several CMDBs are organized to create the CMS, which is the foundation of the SKMS.

3. **How might an organization measure the effectiveness of its knowledge management?** are we doing a goood job getting the right info in the right place so they have the knowkedge

---

Summary

In this lesson, you investigated Service Transition in the IT Service Lifecycle. Service Transition touches all other parts of the lifecycle, and bridges the gap between the design and operation of services. The processes of Service Transition help you to deliver new or changed services as efficiently and as effectively as possible.

What are some of the consequences of poor service asset and configuration management within an organization?

What is the purpose of change management? How does the change management process begin? What are the three types of change?

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

5 Service Operation

Lesson Time: 2 hours, 15 minutes

Lesson Introduction

Before you agree to provide an IT service to customers—internal or external—it is important to fully understand what your commitment entails. Providing and supporting IT services means that there are legally binding contracts in place that govern the levels of service, including acceptable levels of downtime. In this lesson, you will examine the specifics of Service Operation in the IT Service Lifecycle.

Customers expect a high level of commitment and support on your part, and they are rarely forgiving if there is a failure to deliver services as designed and agreed upon. Therefore, even the best designed service is useless if it is not carefully monitored and supported through measurable performance metrics. Service Operation includes a number of processes that can help you keep your services running smoothly.

Lesson Objectives

In this lesson, you will describe Service Operation in the IT Service Lifecycle. You will:

- Describe the basic concepts of Service Operation.
- Describe the Event Management process.
- Describe the Incident Management process.
- Describe the Problem Management process.
- Describe the Request Fulfillment process.
- Describe the Access Management process.

TOPIC A

Basic Concepts of Service Operation

Before getting into the details of Service Operation, there are some key terms that you need to become familiar with. By learning these terms now, you can be better prepared to see how the various processes of Service Operation actually work, what they have in common with one another, and how they differ. In this topic, you will describe some basic concepts of Service Operation.

Service Operation requires that you work closely with people who might not always share your knowledge base. You will be communicating with other members of your company, and you will need to help coordinate the large effort of supporting, studying, and maintaining an IT service used by customers. In order to keep the service running smoothly, you will need to know how to talk to all stakeholders and ensure all processes are operating as designed. By understanding the basic concepts of Service Operation, you can better prepare yourself for whatever process you need to participate in, and you can better prepare yourself for communicating with other team members as you support IT services.

Service Operation

In this stage of the lifecycle, Service Operation coordinates and carries out the activities and processes required to deliver and manage services at agreed-upon levels to business users and customers. Service Operation also manages the technology that is used to deliver and support services. Service Operation has its own processes and functions that are required for the service to be provided per the design at the agreed-upon service level. The five processes of event management, incident management, problem management, request fulfillment, and access management will be addressed in this lesson.

Purpose, Objectives, and Scope of Service Operation

ITIL describes the purpose, objectives, and scope of Service Operation as shown in the following table.

Category	*Description*
Purpose	The purpose of Service Operation is to coordinate and carry out the activities and processes required to deliver and manage services at agreed-upon levels to business users and customers. Strategic objectives are ultimately realized through Service Operations, therefore making it a critical capability.
Objectives	• Efficiently deliver the service as defined in the SLA. • Provide ongoing management of the technology used to deliver and support services. • Work toward reducing the number and impact of service outages. • Strive to reduce repeat incidents that disrupt business activities. • Resolve incidents that do occur. • Control access to IT services.
Scope	The scope of Service Operation includes all that is necessary to deliver and support the required services, including the processes, functions, organization, and tools. According to the ITIL guidance, the Service Operation lifecycle stage is concerned with the services, the service management processes, the technology, and the people.

Value of Service Operation to the Business

Each stage in the ITIL Service Lifecycle provides value to business. For example, service value is modeled in Service Strategy; the cost of the service is designed, predicted, and validated in Service Design and Service Transition; and measures for optimization are identified in Continual Service Improvement. The operation of service is where these plans, designs, and optimizations are executed and measured. From a customer viewpoint, Service Operation is where actual value is seen.

Impact, Urgency, and Priority

Impact, urgency, and priority are interrelated concepts that help assign meaning and significance to an incident, problem, or change.

Term	*Description*
Impact	*Impact* is a measure of the effect of an incident, problem, or change on business.
Urgency	*Urgency* is a measure of how long it will be until an incident, problem, or change has a significant impact on business.
Priority	*Priority* for corrective action is assigned based on impact and urgency, and identifies the relative importance of an incident, problem, or change.

Workarounds

A *workaround* is a way to reduce or eliminate the impact of an incident or problem for which a full resolution is not yet available. Workarounds are temporary fixes.

An Email Workaround

For example, employees at a particular marketing agency frequently exchange emails that contain images. However, the email server has been stripping graphics from the body of the message. The staff has discovered that sending images as attachments does not cause this to happen. Therefore, employees continue to use this approach as a workaround until the issue with the email server is resolved.

Known Errors

A *known error* is a documented problem that has both an identified root cause and a workaround. While most known errors are created and managed by a problem manager or problem management team, it is not uncommon for other individuals to identify known errors, most notably a developer or an external supplier. In addition, known error for information purposes can be raised at any useful time.

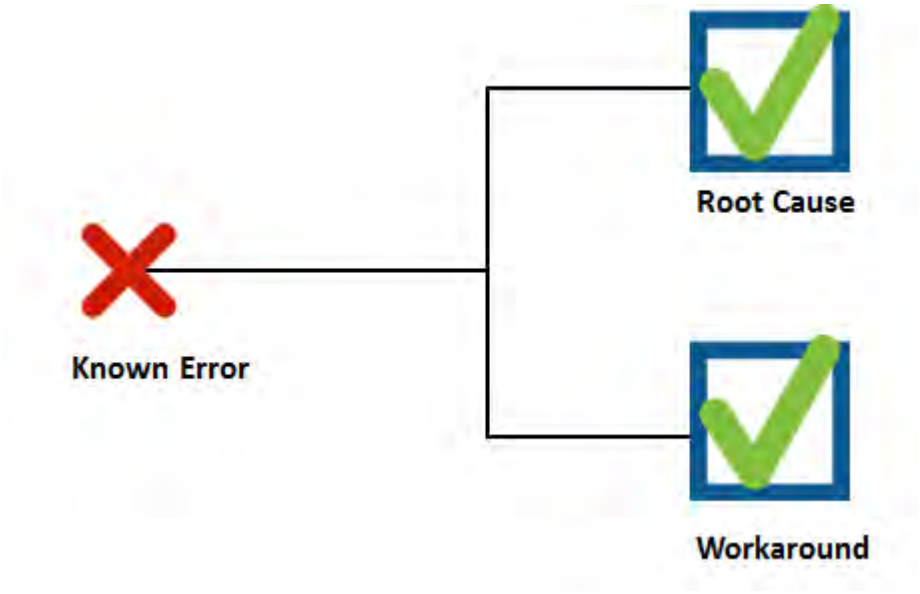

Figure 5-1: A known error has a root cause and a workaround.

Known Errors in the Workplace

Hexa Web Hosting uses an XML editor that is linked directly to a network drive by default. After an upgrade, the network drive location was moved, but the change could not be made directly to the application. Therefore, any users who use the XML editor will have their files attempt to save, by default, to a network location that does not exist. The Service Desk staff now trains users to choose "Save As" before they even begin work, so they can choose a new location to save a file. Without doing that, the autosave feature will cause an error to display about the unavailable network drive, and the work will be interrupted while the user chooses a new filepath. This is a known root cause, however, and since it can't be corrected in the application, a workaround exists to expedite fixing this situation.

Known Error Database

A *known error database* is a database containing details of all known errors. The known error database can also be referred to as a knowledgebase and is populated by the problem management process. It is a very useful tool for the quick resolution of incidents by the Service Desk, and is one component of the SKMS. A known error database does not need to be a formal database; a wiki or an internal website can also be used as a known error database.

Known Error Databases in the Workplace

vLearners, Inc. is a training company that sells both online and instructor-led training. Every so often, students submit errors via a web tool so that vLearners can make corrections to material that is technically inaccurate, outdated, contains a typo, or displays some other small error. This web tool catalogs all of the reported errors as well as established workarounds for the students to use to continue being able to utilize the online training.

Known Error Record

A known error record is a record in the known error database containing the details of a known error. Each known error record should document the entire lifecycle of a known error, including the status, root cause, and workaround.

Role of Communication

Communication needs to be clear, it needs to have a purpose, and it needs to be direct about any action it requests or requires. As in any IT field, distinct groupings of individuals do not always share a common vocabulary; for example, an application manager's concerns are not the same as an application developer's. Therefore, not only should the intended audience be established before any communication or documentation is even written, but that audience should also be actively involved in deciding whether that particular piece of communication is even necessary.

Communication is important in every part of the IT Service Lifecycle. However, the effects of communication are more noticeable to a greater number of people in Service Operation processes; therefore, the role of communication is emphasized a bit more here than in the other ITIL publications.

Note: To learn more, check out the LearnTO **Explain ITIL Concepts to Key Stakeholders** presentation from the **LearnTO** tile on the CHOICE Course screen.

Service Operation Processes

Service Operation consists of five processes that can be used to accomplish its objectives and deliver value to customers. These processes do not need to occur in a fixed order and are repeated as much as needed to operate IT services. The five processes are:

- Event Management.
- Incident Management.
- Problem Management.
- Request Fulfillment.
- Access Management.

ACTIVITY 5-1

Discussing Basic Concepts of Service Operation

Scenario

In this activity, you will discuss basic concepts of Service Operation.

---

1. **Which statements about Service Operation are true?**
   - ☑ It is where customers see value.
   - ☐ It delivers services at the agreed-upon level.
   - ☐ It aims to continually realign the service with customer expectations.
   - ☐ It ensures successful deployment of services.

2. **True or False? Workarounds are temporary fixes.**
   - ☑ True
   - ☐ False

3. **Which of the following is the best example of a known error database?**
   - ○ A collection of documentation about the support database that is stored on the company intranet and is searchable.
   - ○ A document that a client created and uses to work around all the bugs in the software.
   - ○ A wiki that the entire support department has access to, where they can access, modify, and share knowledge to troubleshoot errors.

	**Note:** To learn more, check out the LearnTO **Identify Ways to Use Service Operation in Your Organization** presentation from the **LearnTO** tile on the CHOICE Course screen.

TOPIC B

The Event Management Process

Now that you know the fundamental vocabulary of Service Operation, you can start to see what happens as services are being delivered to customers. One of the first things to happen is that you start to gather information about that service's usage, which consists of both important and unimportant information. One of the earliest processes to deal with this new information is the Event Management process. In this topic, you will examine how Event Management is a useful process for sifting through information about your IT service.

Events occur all the time, and you need to be able to look at them critically, as not all events warrant action. Some events can just be observed, some can be monitored over time, and some can be ignored. Others are alerts requiring attention. You need to know the differences, otherwise you will spend a great deal of time and money tracking information you do not need and that nobody wants. This topic will give you the skills you need to understand how to detect and follow events, how to measure them, and how to gauge your own effectiveness in managing them.

Events

An *event* is simply a change of state which has some significance in the management of a CI or an IT service. An event can be an automated notification from a software program or operating system. An event does not necessarily indicate a problem, and it does not necessarily require an action in response.

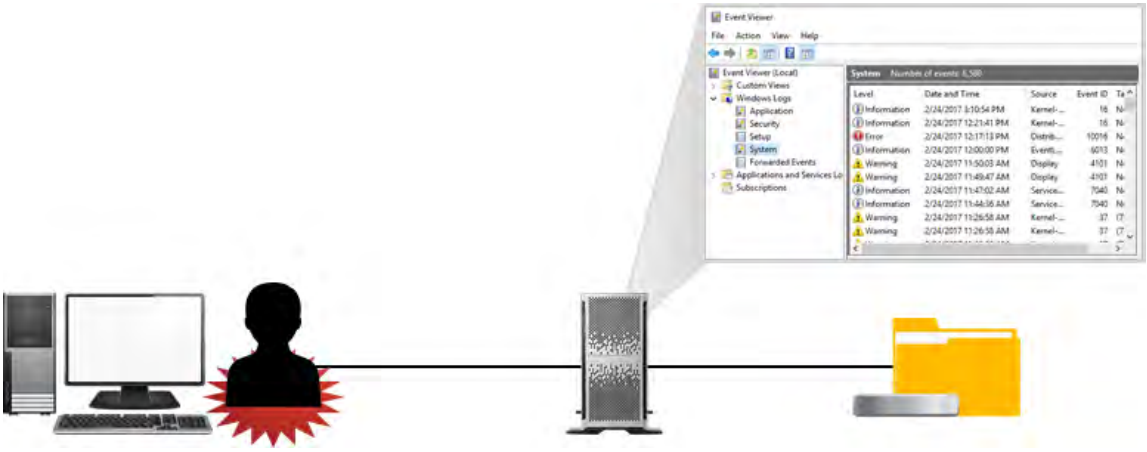

Figure 5-2: Failed logon attempts are stored events.

Logon Events

Joyce is a Project Manager for Hexa Web Hosting. One morning, she finds that she must access an internal database that she has not accessed in months. Rather than reset her password before she even logs in, she attempts to remember her logon information. After failing on her first two attempts, she recalls her password and is logged on successfully. Her two unsuccessful logons are events since they were logged by the database she was trying to gain access to. Her successful logon is also an event.

Types of Events

There are three ways to classify events. Not all event classifications indicate that a problem has occurred.

Event	*Example*
Informational (green)	Network performance within normal limits.
Warning (yellow)	A disk has reach 65% utilization. Triggers a request for change for a routine capacity upgrade.
Exception (red)	Server does not respond when monitoring tool attempts to reach it.

Event Management

Event Management is the process that enables a manager to monitor and document the entire lifecycle of an event. Some Event Management is automated, which is particularly helpful with software errors that get logged and escalated behind the scenes and without human supervision.

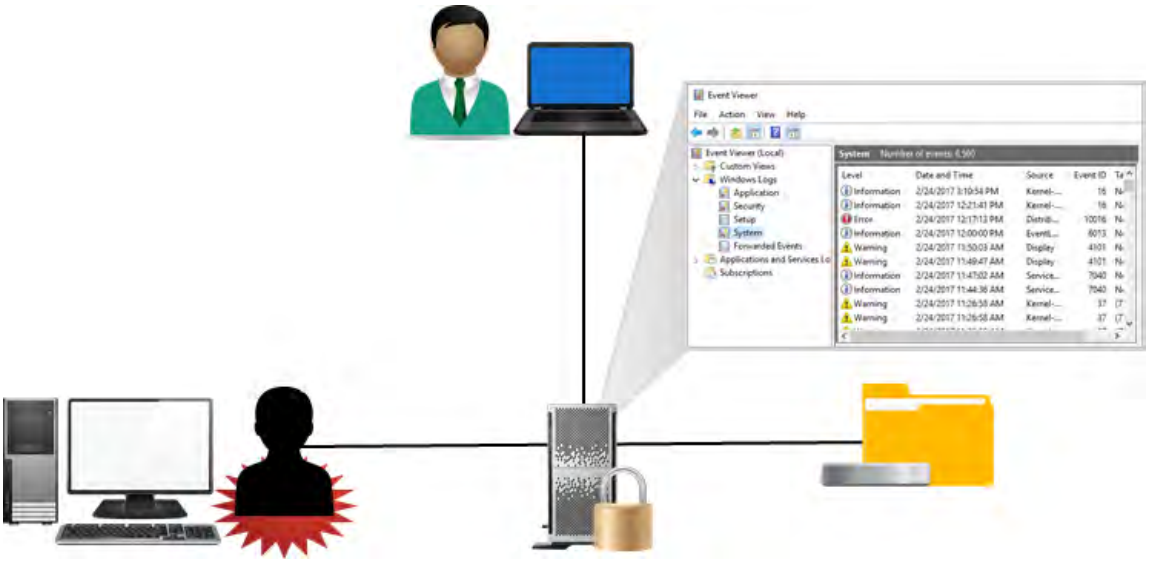

Figure 5-3: Automatic notification of events.

Event Management of Database Access

Michael is a Database Administrator for Hexa Web Hosting. Joyce, a user who has logged on to a database, had two failed logon attempts before gaining access. As the administrator of that database, Michael is emailed a copy of the logfile showing the failed logon attempts. The notification of this event is automated, and in this case, requires no action on Michael's part.

Purpose, Objectives, and Scope of Event Management

Purpose: The purpose of Event Management is to detect events, identify what they mean, and respond appropriately throughout the service lifecycle.

Objectives:

- Detect all significant changes to the state of a CI or an IT service.
- Determine the correct response and communicate it to the appropriate people and functions.
- Provide the trigger that executes the processes and activities, including automated responses and the logging of incidents in a service management tool.
- Assess operating performance and compare it against the design and SLA targets.
- Report events to enable measuring the success of improvement actions.

Scope: Event Management applies to any aspect of service management that needs to be monitored, controlled, and potentially automated. This includes configuration items, environmental conditions, software licenses, security, and normal daily activity.

Activities of Event Management

There are several main activities of Event Management.

Activity	*Description*
An event occurs	Not all events need to be detected.
Event notification	Events are usually communicated (from a CI, say) in one of two ways: • Polling, which probes for specific data. • A report, which is created if and only if certain conditions are met.
Event detection	The event is detected by an agent running on the same system, or is transmitted directly to a management tool. The meaning of the event is interpreted. The usage of automation helps to increase the efficiency of event detection and interpretation.
Event filtering	This is where it's decided whether or not the event should make it to a management tool. Most monitoring tools provide more information than you need; it is important to be able to weigh information properly.
Event classification	The importance of the event is determined. Each business likely has its own way of classifying an event.
Event correlation	This is where the significance of an event is established.
Trigger	If the event is important and significant enough, a response is required. The initiator of the response is called a trigger.
Response options	There are a number of responses that are valid: • Log the event. • Allow an automated response to react. • Create an alert and wait for human intervention. • Submit a request for change (RFC). • Open an incident report. • Open a link to a problem record.
Review actions	This is where you check to see whether an event has been responded to correctly or effectively.
Closing the event	Not all events are closed; some remain open until other actions have been taken.

Alerts

An *alert* is a warning that signals one of three things:

- A threshold has been reached.
- Something has changed.
- A *failure,* which is a loss of ability to operate to specification or deliver output, has occurred.

An alert requires that a person perform a corrective action, probably on a device and within a specified amount of time.

Alerts in Printer Management

Yvonne is a Desktop Support Specialist at a mid-size company with 400 onsite employees. In the central workroom, there are approximately 200 cubicles and there are printers placed at regular intervals throughout the room, with each printer serving a defined area. When one of those printers runs out of toner, Yvonne will need to change the toner cartridge once it has been brought to her attention; an automatically generated email from a print server monitoring application is the alert

that notifies her. In this specific case, a failure has occurred (without toner, the printer cannot complete a job, so the required output cannot happen), and since it was an automatic system notification, this qualifies as an alert.

Triggers

In the Event Management process, a *trigger* is something that initiates a response. It is important to manage this well because you cannot realistically investigate all possible events. The goal here is to establish triggers that strike a balance between monitoring too closely and monitoring at too high of a level; you run the risk of either monitoring events that indicate normalcy, or being too lax and letting too many events turn into incidents.

Triggering the Event Management Process

Each event type can trigger the Event Management process. The following things can be triggers:

- A status change in a user database.
- A business process that is disrupted by an exception.
- A CI that deviates from a baseline.

Metrics of Event Management

There are a number of metrics that you might use to measure the effectiveness of the Event Management process, including:

- The number of events.
- The number of events that do not turn into incidents.
- The effectiveness of responses.
- The number of affected configuration items.
- The speed at which tools notify responsible parties of events.
- How well these events correlate with the normal operation of the service.
- How often an event goes above an established threshold.

ACTIVITY 5-2

Discussing Event Management

Scenario

In this activity, you will discuss Event Management.

---

1. **In which Event Management activity would you decide to pass an event along to a management tool?**
   - ✓ Event filtering
   - Event detection
   - Event classification
   - Event correlation

2. **Which of the following best describes polling?**
   - ✓ A method of communicating events by probing for specific data.
   - A method of collecting data in the event notification activity that generates a report when specific criteria are met.
   - A method of communicating that a failure has occurred.
   - A method of notifying management that there is a problem with a CI.

3. **A website fails to load when the customer enters the URL in her browser. What does this event indicate?**

TOPIC C

The Incident Management Process

In the previous topic, you saw how events can occur during the life of an IT service. These were not necessarily actionable items, but they still needed to be monitored. Some events do wind up becoming incidents and disrupting a service, and you need to take particular care with those, as they can and will affect paying customers. It is therefore important to restore service as quickly as possible through Incident Management. In this topic, you will describe the Incident Management process.

Despite the best planning, organization, and execution, there will still be times when your IT service will not be delivered properly, and your customers will have their services interrupted. There are therefore times when your organization should be focused on restoring service as quickly as possible. But this restoration needs to be carefully managed and monitored, as a scattered response, no matter how well-intentioned, might run counter to the business goals. It might conflict with someone else's attempt at restoring the service, or it might prolong the service interruption because of its disorganization. This topic will help you think of incidents more systematically by introducing you to the Incident Management process.

Incidents

An *incident* is an unplanned interruption to an IT service or a reduction in the quality of that service. Failure of a configuration item to perform its intended function, but has not yet affected service, is also an incident.

Figure 5–4: An incident.

A Disruptive Incident

Joseph is an Analyst for Fuller & Ackerman Publishing. He arrives at his desk one morning and discovers that his computer will not connect to the company intranet, and he also finds that he is not leasing an IP address to gain access to the Internet. This disruptive incident prevents him from doing anything, including using the company database to submit a help request.

Incident Management

Incident Management is a process dedicated to the restoration of normal service as quickly as possible. Normal in this sense is defined by the Service Level Agreement (SLA), which is negotiated as part of Service Design. Since the customer is unable to do the work that they need to do, the goal of Incident Management is to get the service back up and running with minimal delay.

Managing an Incident

Carey logs on to her desktop after lunch and discovers that she cannot access any of the company intranet sites. After clicking around to see what has happened, she discovers that her firewall is now blocking all of the intranet sites. She calls the Service Desk and has someone with proper administrative permissions delete the rule in her firewall that blocks all of the internal sites. The

Incident Management process is not concerned with why the error occurred, only with the restoration of the service; in this case, intranet access.

Purpose, Objectives, and Scope of Incident Management

Purpose: Incident Management is focused on restoring service to normal operations as quickly as possible while minimizing the adverse impact on business operations to ensure that agreed-upon levels of service quality are maintained. The goal is not to determine the cause of the incident, but rather to get the service back on track.

Objectives:

- Ensure the efficient management of incidents, including responding to, analyzing, logging, resolving, and reporting incidents.
- Keep customers informed of incidents when they occur and how the incidents are being handled.
- Maintain customer satisfaction by providing the agreed-upon level of quality.
- Communicate incident management to business and IT support staff.
- Consider the business needs and align IT priorities with the business priorities.

Scope: The scope of Incident management includes all incidents throughout the lifecycle, and works closely with the Event Management process to identify and manage incidents.

Incident Model

Quite a few incidents are not new; they have happened before, they continue to happen, and they likely will happen in the future. To expedite the process of dealing with an incident, some organizations find it helpful to create an incident model. By creating an incident model, you can ensure that any regularly occurring incidents are handled efficiently and effectively.

An incident model contains:

- Any pre-defined steps that should be taken for dealing with a particular kind of incident.
- The order in which these steps should be executed.
- Who is responsible for what.
- The timescale for completing the action.
- Any escalation advice.
- Any reason or strategies for preserving evidence.

Activities of Incident Management

There are several activities in Incident Management.

Activity	*Description*
Identification	The incident is detected, or someone has reported it. Incidents might be triggered by reporting by users, operations, or system/network management tools.
Logging	The incident record is created.
Categorization	The incident is given a type, status, impact, urgency, etc.
Prioritization	The incident is given a prioritization code to manage how it gets handled by staff.
Initial diagnosis	An initial diagnosis is performed to discover the complete symptoms of the incident. Diagnostic scripts and known error information are valuable at this stage.

Activity	Description
Escalation	If the Service Desk cannot handle the incident, *escalation* may be required for additional support. *Functional escalation* involves transferring an incident, problem, or change to a technical team with a higher level of expertise to assist in the escalation. *Hierarchical escalation* is the involvement of senior levels of management to assist in the escalation.
Investigation and diagnosis	If no solution exists yet, the incident is investigated further.
Resolution and recovery	The solution is found and the incident is resolved.
Incident closure	The incident is closed. The Service Desk should check to see that the incident is resolved and that the user is pleased with the solution.

Roles of Incident Management

A number of different roles participate in the Incident Management process. The Incident Manager oversees and supports the entire process, supporting all of the work that the support staff does in responding to incidents. There is also a first-line support role that is typically provisioned by the Service Desk function in ITIL. Then there are the second- and third-level support staff that typically provide higher levels of technical skills after an incident is escalated. These staff can be either internal or external resources.

The Incident Manager

The Incident Manager is the individual who has responsibility for the entire Incident Management process. This includes:

- The gathering and dissemination of management information.
- Managing the work of the support staff.
- Monitoring the efficiency of the Incident Management process.
- Maintenance of any Incident Management systems.
- Managing major incidents.

Major Incidents

Major incidents are described as incidents with an extremely high impact to the business. In these circumstances (which should be defined and agreed-upon where possible), separate procedures should be employed to reflect the shorter timescale. These typically include a clearly defined major incident team, roles, and leadership directly from the Incident Manager.

The Incident Management Process Relationships

The Incident Management process has key relationships with a number of the other ITIL processes. The presence of one or more incidents with an unknown root cause may trigger Problem Management to investigate. Some incidents may require a formal Request for Change (RFC) in order to resolve an incident or apply a workaround. Assessing the cost of resolving an incident may involve the support of the Financial Management process. Incidents relating to performance issues may require assistance from Capacity Management. Recurring incidents without a single root cause may require investigation by Availability Management. Ultimately, the quality of incident data will be critical to support proper Service Level Management reporting activities.

Metrics of Incident Management

Many different metrics can be used to measure the effectiveness of the Incident Management process, including:

- The total number of incidents.
- The number of incidents in a backlog.
- The percentage of incidents handled within the agreed-upon response time.
- The percentage of incidents handled and closed by the Service Desk or the first point of contact.

ACTIVITY 5-3

Discussing the Incident Management Process

Scenario

In this activity, you will discuss the Incident Management process.

---

1. **Which of the following is the best example of an incident?**
   - ○ A DNS Server has had its IP address changed.
   - ○ A user logs on to her workstation.
   - ✓ A customer attempts to place an order through your company website, and the transaction gets caught in a loop and never completes.
   - ○ A network drive has reached 65% capacity, which is within the boundaries of the SLA.

2. **True or False? The Incident Management process restores service to the level defined in SLAs.**
   - ☑ True
   - ☐ False

3. **Which activity follows incident registration in the Incident Management process?**
   - ✓ Categorization
   - ○ Initial diagnosis
   - ○ Investigation
   - ○ Identification

4. **Explain the distinction between an event and an incident.** EVENT IS event incident is outage/ stpage

---

TOPIC D

The Problem Management Process

In the previous topic, you saw how incidents get reported, logged, and dealt with so that service gets restored as quickly as possible. A separate process should be in place to deal with the underlying problems, one that stabilizes the infrastructure by removing the causes of incidents, thereby reducing the impact of incidents on the business. In this topic, you will describe the Problem Management process.

Without a systematic way to identify problems and solutions, troubleshooting would be disorganized, chaotic, and counterproductive. When a crime scene is established, police officers don't trample all over it in frantic search of a murder weapon that might not be there. They instead carefully log everything, re-create the scene, document everything that is relevant, and piece the story together. Problem Management is similar. You need to be able to work cautiously, logically, and thoroughly so that you are learning from and fixing problems, not just covering them up and making them temporarily go away. This topic will give you the background you need in order to accomplish that.

Problems

A *problem* is a root cause of one or more incidents. Details of a problem are documented in a *problem record,* which contains the entire history of the problem, from discovery to resolution. At the time a problem record is created, it is rare for the cause to be known.

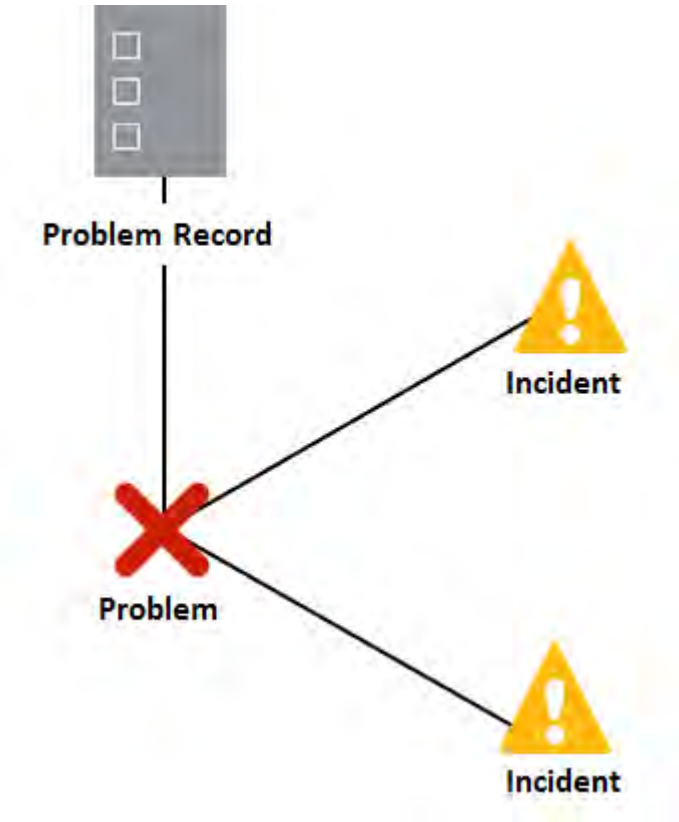

Figure 5-5: A problem is the root cause of incidents.

A Networking Problem

Joseph, the Analyst for Fuller & Ackerman Publishing, finds that he is not leasing an IP address to gain access to the Internet. This disruptive incident prevents him from doing anything, including using the company database to submit a help request. The underlying cause of this incident is a problem. In this case, after some investigation, the IT staff determines that the company's Dynamic Host Configuration Protocol (DHCP) server had a bad network adapter, causing it to lose connectivity.

Problem Models

Problem models are similar to incident and request models in that they pre-define a set of steps to follow to investigate certain types of problems. Organizations can employ certain techniques to improve the consistency of their root cause analysis approaches.

Popular techniques include:

- 5 Why's
- Ishikawa (fishbone) diagram,
- Kepner Tregoe problem analysis

Problem Management

Problem Management is a process that attempts to prevent incidents from happening by troubleshooting the root causes of incidents, known in ITIL as problems. Problem Management does not stop at the restoration of the IT service; its ultimate goal is the removal of the underlying cause of the problem.

Managing a Networking Problem

Carey logs on to her desktop after lunch and discovers that she cannot access any of the company intranet sites. After clicking around to see what has happened, she discovers that her firewall is now blocking all of the intranet sites. She calls the Service Desk and has someone with proper administrative permissions delete the rule in her firewall that blocks all of the internal sites. Although the Incident Management process is not concerned with why the error occurred, only with the restoration of the service, Problem Management wants to know why the error happened, and it will work to learn the root cause. In this case, the cause was a faulty rule that was created in an attempt to block a certain subdomain, but in fact the entire domain was blocked.

Purpose, Objectives, and Scope of Problem Management

Purpose: The purpose of problem management is to document, investigate, and remove the root cause of incidents.

Objectives:

- Prevent problems and resulting incidents from occurring.
- Eliminate recurring incidents.
- Minimize the impact of incidents that you are unable to prevent.

Scope: The scope of problem management includes all activities required to identify the root cause of incidents and take action to permanently remove them. This also includes collecting and maintaining information regarding resolutions and workarounds.

Activities of Problem Management

The Problem Management process has a number of major activities.

Activity	Description
Detect and log	The problem is detected, or someone has reported it. The problem record is also created.
Categorize and prioritize	The problem is given a type, status, impact, urgency, priority, etc. It is also assigned a prioritization code to manage how it gets handled by staff.
Investigate and diagnose	Determining the root cause of the incident.
Workarounds	Determining a way to get the service restored while resolving an incident or problem.
Raise known error	Creating a known error database article that describes the root cause and a workaround.
Problem resolution	A resolution occurs once the problem is permanently fixed, or a workaround is sufficient.
Problem closure	Closure of the problem record.

The Problem Manager

The Problem Manager is the owner of the Problem Management process, which includes everything from problem detection, to understanding the impact of any change, to maintaining the known error database, to closing problem records. Although not all organizations will have a full-time resource for this role, it is vital that someone be responsible for coordinating the entire process.

Major Problems

Based on your organization's prioritization scheme, you may choose to designate a major problem. Major problems should have a Major Problem Review upon completion. These reviews are intended as opportunities for organizational learning and should ask and answer the following questions:

- What things were done correctly?
- What things were done wrong?
- What could be done better in the future?
- How should we work to prevent recurrence?
- Was there third-party responsibility and do we need to follow up?

Metrics of Problem Management

There are a variety of metrics you can use to measure the effectiveness of the Problem Management process, including:

- The average time it takes to diagnose a problem.
- The number of open problems.
- The number of repeat problems.
- The number of open known errors.
- The average time spent resolving a problem.

ACTIVITY 5-4

Discussing Problem Management

Scenario

In this activity, you will discuss Problem Management.

---

1. **Which of the following is the best example of a problem?**
   - ○ A customer is unable to log in to her account, even after entering her user name and password correctly.
   - ✓ No one can access a database, and it's discovered that the database server is offline due to a failed drive.
   - ○ An unauthorized attempt to access the wireless network was blocked.

2. **Which activity immediately follows categorization in the Problem Management process?**
   - ○ Detect and log
   - ○ Raise known error
   - ○ Workarounds
   - ✓ Investigate and diagnose

3. **Which of the following are important concepts in Problem Management?**
   - ☑ Root cause
   - ☑ Known error
   - ☑ Workaround
   - ☑ Closure
   - ☐ Trigger

4. **True or False? A severe incident can become a problem.**
   - ☐ True
   - ☑ False

TOPIC E

The Request Fulfillment Process

In addition to responding to events, incidents, and problems, you will also need to respond to various user service requests. These requests have a very different relationship to the IT service, and it is best to keep them in a separate process for ease of management. In this topic, you will describe the Request Fulfillment process.

Users do not always contact you about a service to point out a fault, or to report an issue with the service which is disrupting their usage or their business. Often, they contact you simply because they need something additional, something that your organization can easily grant. Having a good Request Fulfillment process means being able to satisfy these requests without spending too much money or attention monitoring them.

Service Requests

A *service request* is any request from a user for information, advice, a standard change, or access to an IT service. The request does not necessarily need to be formal, and satisfying it generally poses very little risk to the organization.

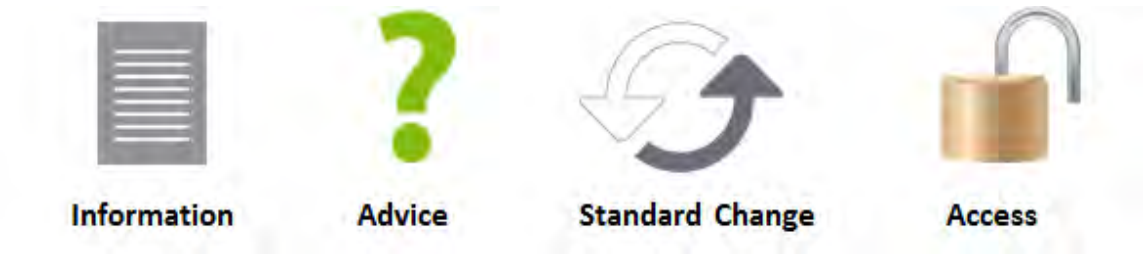

Figure 5-6: Typical service requests.

A Typical Service Request

Joseph is a new employee at Hexa Web Hosting. On his first day, he is shown to his desk and given a large stack of orientation materials that explains his job role, his place in the organization chart, and a list of phone numbers and email addresses for various internal personnel. He was not, however, given the password to log on to his computer. Joseph contacts the Service Desk of the company via phone and makes a service request (in this case, a request for a password).

Request Fulfillment

Request Fulfillment is the process responsible for managing the lifecycle of all service requests, and it enables users to request and receive standard services, many of which can be given at little to no risk to the organization. Request Fulfillment can also be used to provide information to users and customers about services. Many requests can be logged automatically through a phone menu or an application that allows the user to select specific services themselves in drop-down menus.

A Typical Request for Fulfillment

Margaux is a Media Developer for Hexa Web Hosting. She has been assigned to a new project, one that will have her using a software application that she does not currently have installed on her computer. She contacts the Service Desk and requests to have a licensed copy of the application placed on her machine.

Purpose, Objectives, and Scope of Request Fulfillment

Purpose: The purpose of request fulfillment is to manage the lifecycle of service requests from users.

Objectives:

- Efficiently handle simple requests that enable users to meet the requirements of the business.
- Define an authorization and request process to enable users to request and receive standard services.
- Provide users with information about available services and the procedures for obtaining the services.
- Provide a system for users to provide feedback about the services they've received, including how complaints are escalated.
- Source and deliver standard equipment and software to users.

Scope: The scope of request fulfillment encompasses the routine requests for information, equipment, or standard services that are generated by users and routed through the Service Desk. In some organizations, request fulfillment is handled by the Incident Management process; however, service requests are different from incidents and need to be treated as a different type of request. It's recommended to keep request fulfillment and incident management separate because their purposes, objectives, and scopes are different.

Activities of Request Fulfillment

The Request Fulfillment process consists of four activities.

Activity	*Description*
Menu selection	Users place their own requests using service management tools (where applicable) or send a service request to the Service Desk.
Financial authorization	Since most service requests have financial considerations, the cost of fulfilling the request needs to be calculated. In some cases, the prices can be fixed, and authorization is given instantly. In all other cases, the costs must be estimated and the user must give permission afterward.
Fulfillment	This activity depends on the actual nature of the request. If it is a simple request, the Service Desk may be able to handle it. If it is more complex, the request is forwarded to a more specialized group.
Closure	The Service Desk closes the request once the service request has been fulfilled.

Metrics of Request Fulfillment

Possible metrics to use in measuring the efficiency of the Request Fulfillment process include:

- User feedback on making their requests accurately via the automated reporting tool.
- How much money has been spent fulfilling requests.
- How many requests have been standardized.
- How many requests have been fulfilled by the single point of contact.

ACTIVITY 5-5

Discussing the Request Fulfillment Process

Scenario

In this activity, you will discuss the Request Fulfillment process.

---

1. **Which of the following occur in the financial authorization activity of the Request Fulfillment process?**
   - ☐ Fix a price prior to handling the request.
   - ☐ Verify that the user's budget allows for the request to be made.
   - ☐ Estimate a cost after a user makes a request.
   - ☐ Determine that the request falls within your fulfillment budget.

2. **True or False? A service request still falls in the Request Fulfillment process even if it just requests advice.**
   - ☐ True
   - ☐ False

3. **Why might it be important to have a separate Request Fulfillment process, rather than manage service requests in a shared process, such as Access Management?**

TOPIC F

The Access Management Process

Although many of the Service Operation processes are interrelated, there are times when a user simply needs to have his or her access rights granted, changed, or removed. While many aspects of Service Operation concern investigating or fixing service interruptions, sometimes a user just wants to use a particular service. This final process of Service Operation concerns the tools and activities that are required in order to assign and manage access. In this topic, you will see the basics of Access Management.

Whether your organization calls it Rights Management, Identity Management, or Access Management, it is one of the more important processes to manage; without it, who will use your IT service? Without carefully managed access, customers will either be unable to use the appropriate level of service because it is too restrictive, or it will be too permissive and function as a security risk. You need to manage access carefully, and this topic will show you how to manage the entire process.

Access

Access refers to users being allowed to use an IT service. This can refer to running an application, viewing a web page or dataset, logging on to a computer with special applications on it, physically entering a room or wing of a building, and so on.

Granting Access

When Charlie gets to his desk in the morning, he has access to his computer. When he logs on to view a network drive, he only has permission to view certain folders. So, any folders that he does not need to access, he cannot see. He also is able to use applications specific to his job; since he does not work in human resources, he does not need the front-end for the database that keeps track of 401(k) contributions, and so this application does not appear on his computer.

Rights

Rights are the permissions that users or roles have in relation to an IT service. Rights can also be called privileges. Rights are a fundamental concept in Access Management concerning many different kinds of security, whether physical security, network security, application security, and so on.

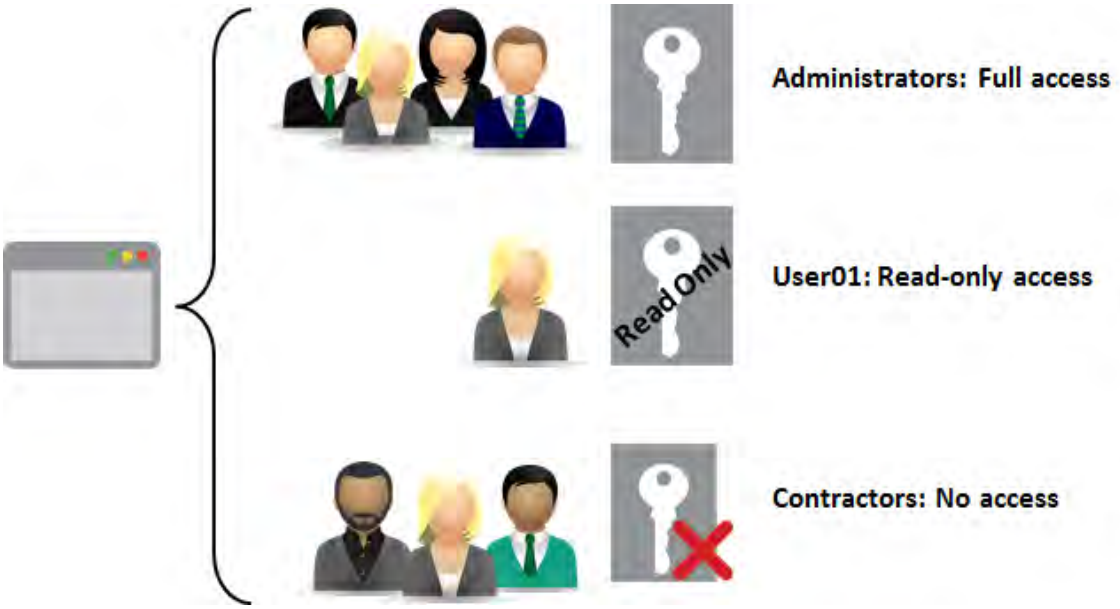

Figure 5-7: Different users may have different rights.

Typical Rights

Not all computer users have full access to all files; in some cases, a user can read a file but not modify it. In other cases, a user is free to modify as he or she sees fit.

Identity

An *identity* is a unique name used to label and distinguish a user or role from other users or roles. This identity is then used to grant or revoke rights. An identity is separate from an employee's personal name because those are not always unique.

Figure 5-8: A user's name and identity are different.

Identity in the Workplace

Jason Smith is a Programmer for Greene City National Bank. His identity, which is how his various levels of access are determined, is his user name on the network ("jsmith") and his role ("application architect"). His actual name might not work as a unique identifier since a different Jason Smith works in accounting. Instead, the first Jason Smith can be given a user name of "jsmith01" and the second can be assigned "jsmith02," which is now a unique identifier.

Service Groups

A *service group* is a collection of services that are bundled, and access to these bundles is given to individuals. It is easier to grant access to shared services this way than it is to allow access by one service at a time.

The Use of Service Groups

All employees at Greene City National Bank have the same fundamental access to some services: they can use a single logon and password to sign in to their desktop computers, access their TCP/IP-based voice mail, log on to their web-based timecards, sign in to the company instant messenger program, and check their email. Since everyone gets these same services, it's easiest to control this by bundling all of these together, creating a single database entry called Basic Services, and granting the users the right to access every service contained therein.

Access Management

Access Management is the process that grants the right to use an IT service. Some organizations refer to it as rights management or identity management, but it amounts to the same thing: authorizing and revoking users as they try to use an IT service.

Changing Access

George is a Network Administrator for Hexa Web Hosting. After their summer internship program ended, a number of interns were offered full-time jobs for the fall. An official request has come from the human resources department that seven people be converted from intern to employee. Since they had restricted access as interns, they now need to have full access given to them. This includes access to networked drives, access to certain software programs on an application server, write permissions on shared documents, and so on. George is now in charge of granting access rights to these seven new employees.

The CIA Triad

Information security seeks to protect three specific elements, or principles: confidentiality, integrity, and availability. This is called the CIA Triad. If one of the principles is compromised, the security of the organization is threatened.

Principle	*Description*
Confidentiality	Confidentiality is the fundamental principle of keeping information and communications private and protecting them from unauthorized access. Confidential information includes trade secrets, personnel records, health records, tax records, and military secrets.
Integrity	Integrity is the property of keeping organization information accurate, without error, and without unauthorized modification. For example, when a hacker replaces content on someone else's website, the integrity of that site is compromised.
Availability	Availability is the fundamental principle of ensuring that systems operate continuously and that authorized persons can access data that they need. Information available on a computer system is useless unless the users can get to it. Consider what would happen if the Federal Aviation Administration's air traffic control system failed. Radar images would be captured but not distributed to those who need the information.

Purpose, Objectives, and Scope of Access Management

Purpose: The purpose of Access Management is to provide users with the services they are authorized to use and require to meet business requirements.

Objectives:

- Manage access to services by executing the policies defined in Information Security Management.
- Verify and authorize all requests for access, including requests to restrict or remove access.
- Efficiently handle requests by balancing the responsiveness to business requirements with the need for authorization and control.
- Ensure that access rights are being used properly with respect to security policies.

Scope: The scope of Access Management is the efficient execution of the information security management policies that protect the confidentiality, integrity, and availability of the organization's data and intellectual property.

Activities of Access Management

The Access Management process has several activities.

Activity	*Description*
Requesting access	Access can be requested via a variety of channels. It can be through a standard RFC, a request generated by the human resources department, or an RFC from the Request Fulfillment process.
Verification	Access cannot be granted without verifying that the request is legitimate. Verify that the user requesting the access really is who they say they are, and verify that there is a valid reason that the user needs access to this new service.
Granting rights	After the access request is verified, the rights can be granted. Note that Access Management does not actually decide who gets to use which service: it only executes the policy.
Monitoring access and identity status	Since user roles change over time (through promotions, lateral movements, reorganizations, retirement, and dismissals), access changes along with it. Access Management responds to requests for access, but also must ensure that the access it grants is functioning properly.
Logging and tracking access	Access must also be logged: this activity tracks who got into what, and when.
Revoking or limiting rights	Access Management both grants rights and revokes rights. Note again that it does not make the actual decision to revoke access rights from a user or group; it merely carries out the procedure.

Metrics of Access Management

There are a number of metrics to use to help measure how successful the Access Management process is, including:

- Number of incidents caused by incorrect permissions.
- Number of forgotten passwords requiring reset.
- Number of access requests resulting from the proper rights not granted through group membership.
- Whether access requests are being made at all, which indicates that what should be automated is not in fact working.

ACTIVITY 5-6

Discussing the Access Management Process

Scenario

In this activity, you will discuss the Access Management process.

---

1. **Which activity follows the monitoring identity status activity in the Access Management process?**
   - ○ Verification
   - ○ Registering and monitoring access
   - ✔ Logging and tracking access
   - ○ Granting rights

2. **What are the advantages to using a non-personal name as an employee or user identity?** unique identiti more secure

3. **What are other terms for access management?**
   - ☐ Availability management
   - ☑ Rights management
   - ☐ Identity management
   - ☐ Service group management

Summary

In this lesson, you described the Service Operation component of the IT Service Lifecycle. Your ability to deliver or support a service or services to agreed-upon levels ensures customer satisfaction. This is achieved through careful use of metrics to ensure that the service is operating smoothly.

What procedures happen in your workplace that you can now identify as occurring as part of Service Operation?

In your view, what is the difference between Access Management and Request Fulfillment?

	**Note:** Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

6 Service Operation Functions

Lesson Time: 1 hour, 30 minutes

Lesson Introduction

Now that you know what Service Operation entails, you have to know how it exists in the workplace and what roles are associated with it. An IT service provider's processes and functions together make up what ITIL calls its organizational capabilities, which is a key factor in the ability to provide value to customers in the form of goods and services. In this lesson, you will describe the roles and objectives of the most common Service Operation functions.

Managing Service Operations does not involve a one-size-fits-all approach, as the most common Service Operation functions have their own best practices, service units, concepts, and inputs/outputs. Understanding how these functions differ will help you get the most out of your organization's various Service Operations. Additionally, the Foundation exam tests your knowledge of the functions of Service Operation according to ITIL.

Lesson Objectives

In this lesson, you will describe the various functions of Service Operation Lifecycle in the IT Service Lifecycle. You will:

- Describe the Service Desk.
- Describe Technical Management.
- Describe IT Operations Management.
- Describe Application Management.

TOPIC A

The Service Desk Function

Now that you have seen what the various processes are within Service Operation, you will next see them in action. The most common and most public way for these processes to be put into action is with the Service Desk, which services both internal and external customers. In this topic, you will describe the function of the Service Desk, its various roles, and how it fits into Service Operation of the IT Service Lifecycle.

An important function of Service Operation is the Service Desk; without it, the service goes unsupported, there's no centralized way of collecting information about your service, and there's no focused effort to diagnose and resolve issues that pop up during the delivery of your IT service. Without a firm understanding of what the Service Desk ought to do, it will be difficult to implement or improve a Service Desk in your own organization.

Service Operation Functions

There are four functions within Service Operation:

- Service Desk.
- Technical Management.
- IT Operations Management.
- Application Management.

The Service Desk

A *Service Desk* is a single point of contact between users and the service provider. A Service Desk typically manages incidents, service requests, and access requests, and also handles communication with users. When possible, it resolves incident and service requests to restore normal service to users as quickly as possible; it escalates when needed.

ITIL draws a clear distinction between a Service Desk and a Help Desk. A *Help Desk* is a point of contact for users to log incidents and is usually more technically focused than a Service Desk. However, it does not provide a single point of contact for all interaction. Although many people tend to use the terms interchangeably, the terms Service Desk and Help Desk are not synonymous. The term Service Desk will always be used in ITIL publications and on exams.

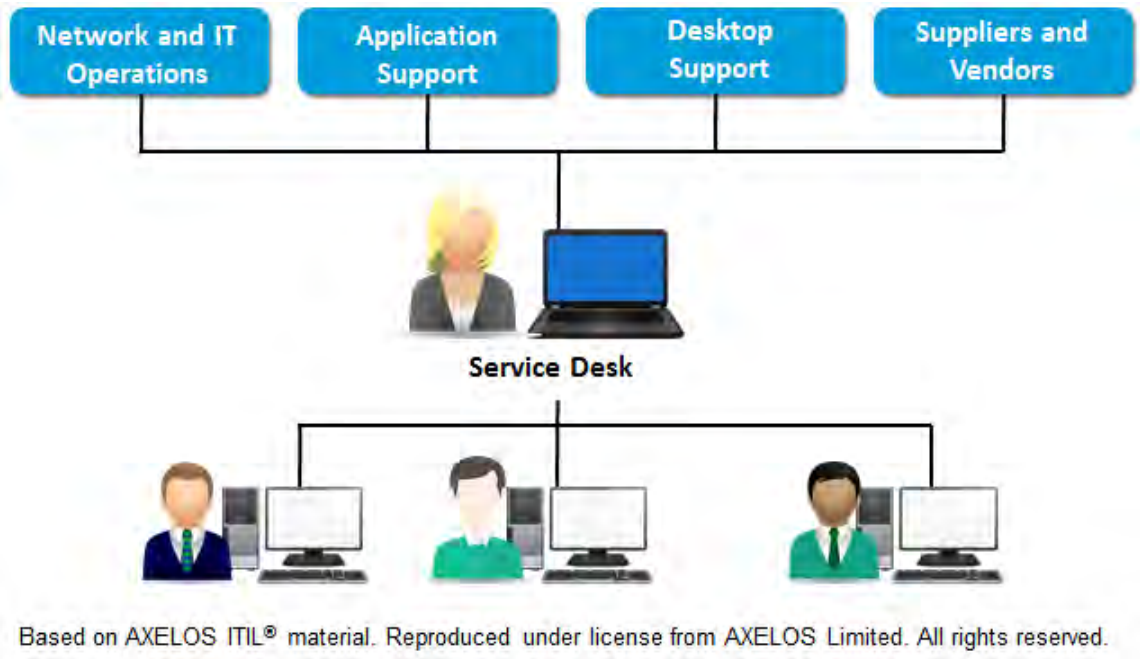

Figure 6-1: A Service Desk.

Service Desk Organizational Structures

There are a variety of ways to organize your Service Desk to achieve its goals.

Service Desk Type	*Description*
Local Service Desk	A desk that is situated in close geographic proximity to the users that it supports.
Centralized Service Desk	A consolidation of a number of different Service Desks into one single location. This helps to ensure that processes are shared, reporting metrics are consistent, resources are better utilized, and any localized skills are known and available to other Service Desks.
Virtual Service Desk	Usually created and accessed through web-based tools, the impression of a centralized Service Desk is created, but in reality, the individuals supporting it are scattered over a number of geographic locations.
Follow-the-Sun Service	In this type, there are two or more Service Desks that are geographically located so that their combined service hours create 24 hours a day, 7 days a week coverage. This type can be combined with others; it is possible to have a virtual Follow-the-Sun Service Desk, for example.
Specialized Service Desk Groups	Any requests related to a specific, specialized service get automatically routed to a specialized group.

Justifications for a Specialized Service Desk

The primary purpose of a Service Desk is to respond to general calls and requests for assistance. A specialized service desk may be justifiable:

- If the requesting users are VIPs.
- If there are user groups with language or cultural differences.
- If the Service Desk is for a specialized group of users.
- If the Service Desk requires specialist knowledge.

Service Desk Objectives

The Service Desk has a number of specific responsibilities and objectives, including:

- Acting as a single point of contact for the users.
- Acting as a first-line investigative and diagnostic unit.
- Logging all incident/service request information.
- Resolving incidents or service requests.
- Escalating any incidents or service requests that the Service Desk cannot resolve in a certain time period.
- Keeping users informed about the progress of the resolution.
- Closing all resolved incidents and requests.

Service Desk Metrics

Many different metrics can be used to measure the efficiency of a Service Desk. Some of them are:

- The number or percent of calls resolved with the user still on the phone.
- The number or percent of calls resolved with escalation.
- The average time to resolve an incident.
- The average cost of handling one call.

Soft Metrics

In addition to quantifiable information to be used for metrics, there are a number of soft metrics that can be used to see how successful the Service Desk is. These include:

- Customer satisfaction surveys (email, online, or personal).
- Personal or group interviews.
- After-call surveys.
- Service Level Management reviews.

Since improvement to the Service Desk means to align the customer expectations—which are based on the service level agreements and targets—with what is being delivered to them, asking questions such as "Do you think your phone calls are promptly answered?" and "Is the Service Desk staff friendly and professional?" can go a long way to helping to accomplish this improvement.

ACTIVITY 6-1

Discussing the Service Desk

Scenario

In this activity, you will discuss the Service Desk.

1. **Which items does a Service Desk typically deal with?**
   - ☑ Incidents
   - ☑ Access requests
   - ☐ Business cases
   - ☑ Service requests

2. **The Service Desk for Hexa Web Hosting is divided between dozens of individuals working out of their homes in two geographically distinct locations, so that the coverage spans 24 hours a day, 7 days a week. Which one or more of the following categories would this Service Desk fall into?**
   - ☐ Local
   - ☑ Virtual
   - ☑ Follow-the-Sun
   - ☐ Centralized
   - ☐ Consolidated

3. **True or False? Service Desks are responsible for closing resolved incidents and requests.**
   - ☑ True
   - ☐ False

4. **Which one or more of the following would be good metrics to use for evaluating the efficiency of a Service Desk?**
   - ☑ Average cost of handling a call
   - ☑ Number of incidents resolved without escalation
   - ☐ Network downtime
   - ☐ Download speed of a security patch for a piece of internally developed software

TOPIC B

The Technical Management Function

In the previous topic, you saw the important role that the Service Desk plays as a function within Service Operation. The Service Desk is a highly organized function, but not all functions operate this way. Some functions are composed of people scattered throughout different departments, joined only in the loose definition of what roles they play and which customers they support. Technical Management is one such function. In this topic, you will describe the Technical Management function.

Some support will need to be provided by loosely organized groups of people who are affiliated with many different departments. In this case, the technical expertise will need to be weighed by someone who knows which skills match up with which support needs. This is where Technical Management comes in, and a solid understanding of how work is accomplished within this function will put you on your way to meeting and exceeding customer expectations for support needs.

Technical Management

Technical Management is a function within Service Operation that is responsible for providing technical skills for both the general IT infrastructure and for IT service support. Technical Management plans, implements, and maintains the stability of the technical infrastructure. It is a caretaker of the technical knowledge required to manage the organization's IT infrastructure.

Typical Technical Management in the Workplace

Chad is a Network Administrator for Greene City National Bank. He is part of the Information Technology Services department, which handles the IT infrastructure of both internal and external requests to access the company network. He makes sure that the services within the company, such as the hard-wired network within the buildings of the central campus, and that the virtual networks, including the Virtual Private Network (VPN) that remote employees use to access the company intranet, are available and operational.

Technical Management Responsibilities

Technical Management fills a variety of roles in the organization, including:

- Identifying knowledge and expertise requirements.
- Defining IT architecture standards, if necessary.
- Assisting with any management of contracts and vendors.
- Participating as needed in any Service Design, Service Transition, or Continual Service Improvement projects.
- Helping to design and build new services and practices.
- Assisting with the standardization of new tools.
- Evaluating any change requests.
- Assisting as needed with any Service Management processes.

Technical Management Objectives

The primary objective of the Technical Management function is to assist in the planning and maintenance of a stable IT infrastructure. It does this by monitoring three objectives:

- Ensuring that the physical technical topology is effective and robust.
- Knowing who and what should service the infrastructure to keep it in optimal condition.

- Applying technical skill sets to diagnose and fix any issues that arise in the lifetime of that infrastructure.

ACTIVITY 6-2

Discussing Technical Management

Scenario

In this activity, you will discuss the Technical Management function.

---

1. **Which one or more of the following are Technical Management roles?**
   - ☐ Technical Writer
   - ☑ Technical Analyst
   - ☑ Technical Operator
   - ☐ Facilities Manager

2. **Which statement about Technical Management is correct?**
   - ○ It supports technological advancements through careful planning and testing.
   - ✓ It provides technical skills for both the general IT infrastructure and for IT service support.
   - ○ It provides advanced expertise to the Service Desk should there be an escalated service call.
   - ○ It supports IT infrastructure improvements after being approved by Service Design.

3. **What is the primary objective of Technical Management?**
   - ○ Advise Human Resources on technical staffing needs.
   - ✓ Ensure a stable IT infrastructure.
   - ○ Ensure appropriate execution of SLAs.
   - ○ Monitor day-to-day IT functions.

TOPIC C

The IT Operations Management Function

No matter how successful a service is, there are unheralded and necessary components acting behind the scenes that must be there and be well-managed, or the service simply can't exist and can't be supported. IT Operations is a Service Operation function that supports the support: without a well-managed and supportive IT infrastructure, the Service Desk is inaccessible and cannot be helpful. In this topic, you will describe the IT Operations Management function.

There is an IT service, and then there is the IT infrastructure that is used to deliver it. Similarly, there are trains that transport people, and there is the track that carries the train. An IT service is stuck in the station without an infrastructure to distribute it to customers, and understanding this will prevent serious oversights in the delivery of your IT service.

IT Operations Management

IT Operations Management is a function within Service Operation, in which the daily activities that are necessary for supporting the IT infrastructure are performed. This is true even if there are no customers, no incidents logged, no new services, no changes or improvements, or no service requests.

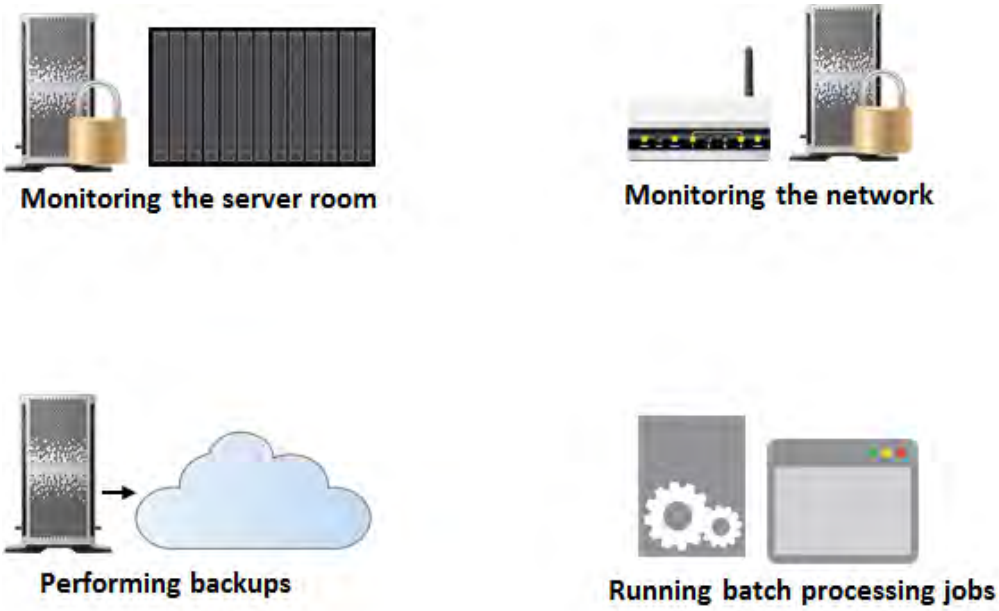

Figure 6-2: Typical IT Operations Management tasks.

IT Operations Management in the Workplace

Hexa Web Hosting has a number of activities that get performed every day that are necessary if the company is to function properly. For example, the server room temperature is monitored and maintained so that the central processing units (CPUs) are cooled properly, the network is monitored for any suspicious or malicious traffic, nightly backups are monitored to ensure they complete successfully, and so on.

IT Operations Management Functions

The IT Operations Management function can be broadly broken into two groups:

- *IT Operations Control* is the function that involves general technology roles.
- *Facilities Management* is the function that manages the physical environment of the IT infrastructure.

IT Operations Management Objectives

There are three primary objectives of IT Operations Management:

- Keep the day-to-day processes stable.
- Improve services to reduce costs while maintaining stability.
- Diagnose and resolve IT problems quickly and efficiently.

The Operations Bridge

An *operations bridge* is a centralized physical location that manages and coordinates routine operational activities. It is also responsible for reporting on the status of technological performance. The operations bridge may or may not be combined with the Service Desk in some organizations.

Note: It might help to note that the term "bridge" here is being used to refer to a physical location (like a command bridge on a ship), and not a span between two things.

An Operations Bridge in Action

Hexa Web Hosting has decided set up an operations bridge in the Service Desk suite. They arrange the Service Desk staff's desks so everyone can see a whiteboard that lists the current major problems to allow duplicate incidents to be linked correctly to the problem record, or to a master incident record. Additionally, a Simple Network Management Protocol (SNMP) workstation is set up to collect system health data on major applications across the enterprise. At a glance, the Service Desk can now see outages that affect services as systems highlighted in red on the display.

Job Scheduling

Job scheduling refers to the execution of standard and mostly automated reports, queries, or routines that are run to monitor various services, technologies, or applications. Job scheduling is part of the routine technological maintenance tasks that most IT departments perform.

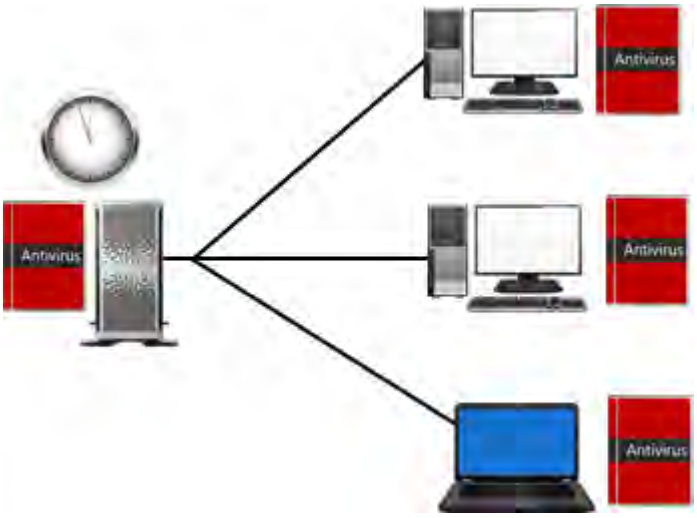

Figure 6-3: Antivirus job scheduling.

Automated Software Updates

Client software updates such as antivirus definition files are typically automated through job scheduling.

ACTIVITY 6-3

Discussing IT Operations Management

Scenario

In this activity, you will discuss IT Operations Management.

---

1. **Which statement about IT Operations Management is correct?**
   - ○ It provides technical expertise.
   - ○ It provides access when the Service Desk cannot.
   - ○ It supports difficult service requests.
   - ✔ It supports the physical IT infrastructure.

2. **Which of the following terms concerns the execution of standard and mostly automated reports, queries, or routines?**
   - ✔ Job scheduling
   - ○ Operations bridge
   - ○ Service Desk
   - ○ Task management

3. **Which role manages the physical environment of the IT infrastructure, including data centers, recovery sites, power supplies, air conditioning, and climate control in the server room?**
   - ○ IT Operations Leader
   - ○ IT Operations Manager
   - ✔ Facilities Manager
   - ○ Shift Leader

TOPIC D

The Application Management Function

In the previous topic, you saw how the IT Operations Management function fits into the whole Service Operation Lifecycle stage. But some IT services require more specialized support, and this is where the Application Management function comes in. Application Management concerns the entire lifecycle of an application.

Often, an organization is faced with a choice: develop a custom application and support it in-house, or purchase an application from a vendor and rely on their support. Although assisting in this decision is the primary role of Application Management, there is a bit more to it than that, as Application Management is rarely handled within a single department. Most often, those who participate in this function are part of an ad-hoc team, borrowed from several departments. Knowing how to manage a function that is decentralized like this is crucial to delivering both the applications and the support required to maintain them.

Application Management

Application Management is responsible for managing the entire lifecycle of an application. Application Management can also be involved in the design, testing, and improvement of any application that is being used in an IT service. This general, decentralized role is similar to the role that Technical Management plays, with a focus on software applications rather than technological infrastructure.

Within IT, application development is typically focused around internal activities to design, build, test, and deploy IT solutions being constructed within the IT organization. Application management takes a much broader view that recognizes the capabilities in today's marketplace to obtain applications from many sources other than the internal IT organization. In addition, it also focuses on the ongoing management and maintenance of applications that takes place once applications have been deployed.

Potential Costs and Application Management

Gary is a manager for the Solutions Team at Hexa Web Hosting. One of his current projects is to lead a team that is in charge of determining the real costs of a potential application purchase. The choice has come down to purchasing a proprietary program that they would need to then receive paid support for, or else they need to design and implement a custom application in-house.

Applications vs. Services

It is somewhat common for organizations to refer to applications as services, but it is actually quite a bit more complicated than that. Applications are a component of providing a service, but they are not necessarily synonymous. An application may support more than one service, or a service may make use of many different applications.

Guidelines for Using Application Management in Service Design

Service Operation is not the only lifecycle stage that Application Management plays a role in. For Service Design, Application Management would assist decision-making in a variety of areas:

- How large will the application be?
- What is the forecasted workload for making the application?
- What are the operational costs, if any, that will be long-term and ongoing?
- Will the application need to be integrated with other applications?
- What are the estimates of customization costs?

- Will the skills needed to run the application be learned by existing employees? Will it require new hires?
- Are there new security requirements or vulnerabilities that will be introduced with this new application?
- Will the application need access to otherwise restricted data or databases?

Application Management Objectives

The Application Management function has four basic objectives:

- Design effective, cost-saving applications.
- Deploy appropriate technical expertise to maintain those applications.
- Diagnose and resolve application-related trouble.
- Ensure that the required functionality is available to achieve the required business outcomes.

ACTIVITY 6-4

Discussing Application Management

Scenario

In this activity, you will discuss Application Management.

---

1. **True or False? The scope of responsibility for Application Management is similar to the scope of responsibility for Technical Management for their respective areas.**
   - ☑ True
   - ☐ False

2. **Which statement about Application Management is correct?**
   - ○ Application Management handles only applications developed in-house.
   - ○ Application Management is the only Service Operation function that deals exclusively with internal customers.
   - ○ Application Management only handles the application's lifecycle stages once it can be tested.
   - ◉ Application Management, like Technical Management, is a decentralized function.

3. **Which of the following are objectives of the Application Management function?**
   - ☑ Diagnose and resolve application-related trouble.
   - ☐ Diagnose technical infrastructure issues.
   - ☑ Design effective, cost-saving applications.
   - ☑ Deploy appropriate technical expertise to maintain those applications.
   - ☐ Coordinate routine operational activities.

Summary

In this lesson, you described the functions of Service Operation in the IT Service Lifecycle. Understanding the best practices, service units, concepts, and inputs and outputs of these functions will help you get the most out of your organization's Service Operations.

When, in your experience, have you had an operations bridge in your workplace?

What are some job titles in your organization that fall into a Service Operation function?

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

7 Continual Service Improvement

Lesson Time: 1 hour

Lesson Introduction

In the lifecycle, Continual Service Improvement (CSI) is the key stage because it encompasses all the other stages; despite any successes, you are never finished improving on your organization's approach to IT service management. In this lesson, you will learn how Continual Service Improvement fits into the lifecycle and how its lessons can be broadly applied to all other lifecycle stages.

Regardless of your organization's success with its service delivery, there can always be improvements in the effectiveness and efficiency of your services and service management processes. By keeping a watchful eye on your own processes, you can be ready to create value by improving the cost or delivery of any service. A thorough understanding of CSI will put you well on your way towards that goal.

Lesson Objectives

In this lesson, you will describe Continual Service Improvement in the IT Service Lifecycle. You will:

- Describe the basic concepts of Continual Service Improvement.
- Describe the principles of CSI.

TOPIC A

Basic Concepts of Continual Service Improvement

In the previous lessons, you learned about Service Strategy, Service Design, Service Transition, and Service Operation. In this topic, you will focus on Continual Service Improvement (CSI) in the IT Service Lifecycle, and learn the terminology that will help you in your organization's attempts to constantly measure and improve IT services, whether they are new or existing.

When you design new services and bring them into operations for your customers, you are expected to deliver a certain level of value for them. Things evolve over time: the customer's needs change, the business environment changes, the available technology changes. This creates opportunities to realign services to the customer's evolving requirements to deliver better, faster, cheaper, more effective service to allow customers to do what they need and want to do. Therefore, if real improvements are going to be made to IT services, it is very important that very specific strategies are used. You need to be clear about how you will look at your existing services, look at the processes you used to get there, and identify ways to create and maintain value over time.

Continual Service Improvement

Continual Service Improvement (CSI) is the stage in the lifecycle of a service that ensures that services are aligned with changing business needs. A major objective of CSI in ITIL is business alignment between service support, service delivery, and the customer's requirements. Additionally, another primary objective of CSI is assurance of quality throughout the whole IT Service Lifecycle. Quality must be built from the start and constantly assured. To achieve this, the performance of the IT service provider is continually measured so that improvements can be made to all aspects of the service. CSI increases efficiency and effectiveness within cost constraints.

Although CSI is technically a separate core publication, it should not be viewed as a separate set of activities. CSI is applied throughout the Service Lifecycle, and it should be absorbed into each stage, becoming an integral part of each lifecycle stage.

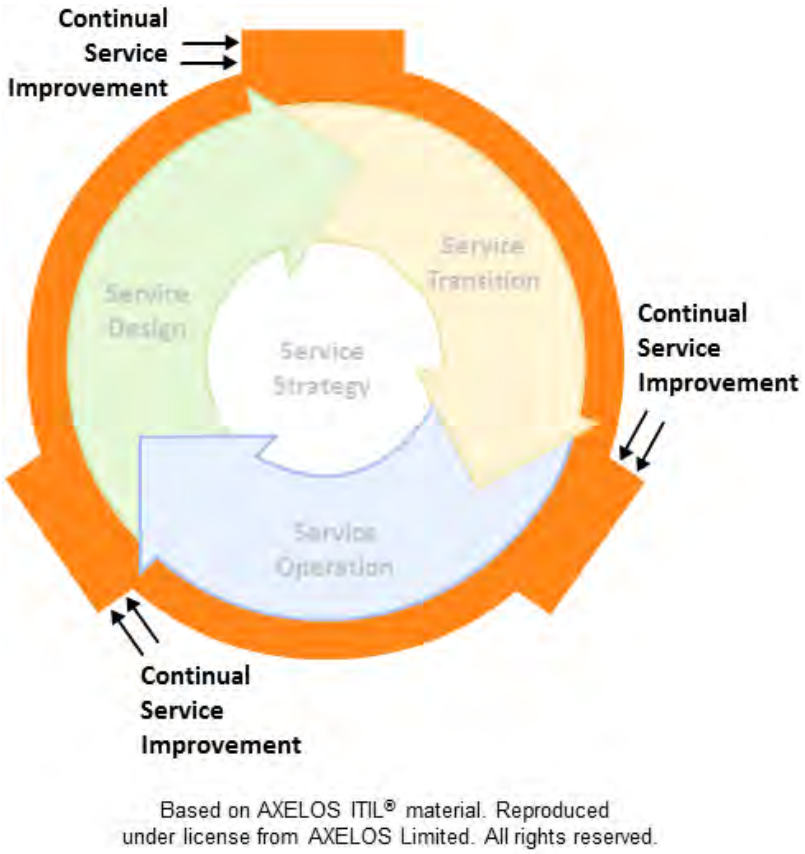

Figure 7-1: CSI and the Service Lifecycle.

Purpose, Objectives, and Scope of Continual Service Improvement

ITIL describes the purpose, objectives, and scope of Continual Service Improvement as shown in the following table.

Category	*Description*
Purpose	The purpose of CSI is to provide the business with consistent IT service support in the ever-changing business environment. As business processes change, CSI focuses ensures that the IT services that support the business are changing and improving accordingly.
Objectives	• Review, analyze, prioritize, and recommend improvements in every lifecycle stage: Service Delivery, Service Transition, Service Operation, and also CSI. • Review and analyze service level achievement, including comparing against the SLAs. • Identify activities and implement them to improve IT service quality and increase the effectiveness of related processes. • Improve cost-effectiveness of IT service delivery without adversely affecting customer satisfaction. • Establish and implement quality management methods. • Provide clearly defined objectives and measurements for the process improvements. • Identify what measurements and metrics will be used, understand the why, and define a successful outcome.

Category	Description
Scope	The scope of CSI is applied throughout the Service Lifecycle, and it should be absorbed into each stage, becoming an integral part of each lifecycle stage. The ITIL guidances identify the following areas: • The health of IT service management as a discipline. • The continual alignment of IT service with the current and future business needs. • The maturity and capability of the organization, management, processes, and people used by the IT services. • The continual improvement of all aspects of IT service and their supporting service assets.

CSI Interfaces With Other Lifecycle Processes

CSI is tied into all aspects of the Service Lifecycle. For example, within Service Design, the Service Level Management process aims to ensure that all negotiated service levels with the customer are being met. Even if the level of service being provided is satisfactory, the goal of Service Level Management, and CSI alike, is to proactively seek ways to improve the level of service being offered through regular monitoring, reporting, and adjusting. If the levels of services are not being met satisfactorily, then Service Level Management seeks to improve the Service Design and CSI develops Service Improvement Plans (SIPs) to address any identified areas of improvement.

Value of CSI to the Business

Improvement in ITIL is actually closer to the definition of realignment. In Continual Service Improvement (CSI), the improvement occurs when there is a measurable realignment of the service that better meets customer expectations. By continually optimizing and improving the IT services provided, the business and customers benefit by receiving quality services in a controlled manner.

Improvement of Printing Services

12PointFont is a small printer and copier service company with dozens of clients in a medium-sized metropolitan area. They dispatch technicians to respond to customer issues, and because the area they cover is a medium-sized market, they have an acceptable response time. Many customer surveys, however, find that the response time is slower than expected. Therefore, when 12PointFont decides to improve their service, they will be doing so by trying to realign their service with what the customers expect.

Ownership in CSI

If you want to accomplish anything in business, you have to have clear, unambiguous ownership and accountability for outcomes and results. Accountability must be clear. Without this, there will be no improvement because of the tendency to blame others whenever services fail to meet the customer's expectations. ITIL maintains that there are three key requirements to ensure ownership:

- Accountability. Only one person should be accountable for each service, and only one person should be accountable for each process. This person is responsible for all operational performance and for improvements as well.
- Responsibility. You need to have responsible resources who are going to be working to ensure both adoption and sustainability of the service itself.
- Authority. This is required in order to influence resources to carry out what's required of them to ensure that the service or process is going to work.

Roles of CSI

The roles in CSI fall into two basic categories.

Group	*Roles*
Production	People who support CSI: • Service Manager, who focuses on the market for services and develops business cases for current and future service offerings. • Service Owner, who continually improves (realigns) the service he or she owns according to customer requirements. • CSI Manager, who coordinates CSI activities across the lifecycle of services. • Process Owner, who continually improves (realigns) the process he or she owns according to customer requirements.
Project	People who participate in the CSI plan: • Program and Project Management, which ensures that projects do not interrupt business/IT alignment. • Executive Sponsors, who establish the mission and objectives of IT projects in harmony with the customer's business strategy. • Process Owners, who continually improve (realign) the process they own according to customer requirements. • Design Team(s), who utilize a holistic perspective of the customer's business and the supporting IT services to appropriately design new services and changes to existing services.

Activities of CSI

The activities for CSI are heavily dependent on the process being improved upon. Nevertheless, there are a few general activities that might be applicable to most improvement initiatives:

- Assessing whether or not current services are meeting agreed-upon service levels.
- Assessing current management information to see if the outputs of processes are getting the desired results.
- Assessing the current roles and activities.
- Conducting audits and measurements.
- Determining feasibility.
- Conducting service reviews to discover better opportunities for CSI.

Types of Governance

There are four types of governance in ITIL.

Governance Type	*Description*
IT governance	IT governance concerns exerting control over the IT Service Lifecycle. This includes both overseeing it and demonstrating authority and control over any service improvements. Governance also includes communication between necessary parties about what is being controlled.
Corporate governance	Corporate governance concerns how to best make sure that everything is transparent and accountable, and that risks are managed appropriately.
Business governance	Business governance concerns the performance side of the organization.

Governance Type	Description
Enterprise governance	Enterprise governance deals with the big picture as far as aligning strategic goals, and encapsulates corporate governance and business governance. It may include the supervision of a board of directors or Chief Executive Officer (CEO).

ACTIVITY 7-1

Discussing Basic Concepts of CSI

Scenario

In this activity, you will examine basic concepts of CSI.

1. **What is CSI's relation to the Service Lifecycle?**

   make improvemebts through any stage of lifecycel

2. **What are some key objectives of CSI?**

   continue allign and reallign clear ownership and accounabilty - make it team work and make it happen

3. **Why is ownership important in CSI?**

   need clear and need to for ownership to make thing happen

4. **Which one or more of the following describe governance?**

   - ☐ Voting to see who should be the most accountable for a process.
   - ☑ Ensuring that policies and strategy are actually implemented.
   - ☐ Validating previous decisions.
   - ☐ Defining what should be measured.
   - ☑ Exerting control over something.

TOPIC B

CSI Principles

In the previous topic, you examined some basic concepts of CSI. Now you will start to see those terms applied to CSI in action. In this topic, you will examine the basic principles of CSI.

Improvement is not something that can be recklessly rushed into in the name of progress and competitiveness, as not every improvement makes sense. A potential improvement to a service might actually cost more to implement than it would save in the long run, but you might not discover this unless you pause and systematically analyze the proposed improvement before you set it in motion. There are a few models and processes that help you accomplish this, and they are important if you want to introduce a successful improvement.

The PDCA Model

Plan-Do-Check-Act (PDCA), also called the *Deming Cycle*, is the name of a four-stage cycle for process management improvement, usually attributed to statistician and consultant W. Edwards Deming. The individual stages are:

- Plan, where you design or revise processes that support the IT services.
- Do, where you implement the plan and manage the processes.
- Check, where you measure the processes and IT services, compare with objectives, and report on the findings.
- Act, where you analyze differences, and plan and implement changes to improve the processes.

One of the most crucial and beneficial points about the PDCA Model is that it is iterative, or constantly evolving. The PDCA Model repeats until a goal is achieved, with the output of one cycle used as the input of the next. In this way, there is acknowledgment that the process is never finished and that change is never good enough.

Figure 7–2: The PDCA Model.

W. Edwards Deming

W. Edwards Deming (1900–1993) was an American statistician and consultant best known for his work in improving production and production quality during World War II. Deming is also known for his "Seven Deadly Diseases," which catalogs seven things businesses do in the name of progress that actually contribute to their downfall. Among these are: too much focus on short-term profit; excessive medical costs; and evaluation by performance, merit rating, or annual review.

The CSI Approach

Continual Service Improvement is driven by the CSI Approach, which is a generic model for improvement of just about anything. Like the PDCA Model, this process is continual and loops to the beginning once it has finished.

Step	*Description*
What is the vision?	Formulate a vision, define the mission, create goals, and create objectives that work together with the business. This step determines why you are taking action or contemplating a change. You must account for the vision and goals of the customer.
Where are we now?	Analyze the current state of things through assessment and benchmarking to determine the current level of performance. You need to have a clear understanding of the current state of the improvement area of focus. Establishing a baseline will be useful for later comparison.
Where do we want to be?	Define and detail the desired state that is aligned to the vision and create a business case for the improvement. It's important to choose measurable, achievable targets. How do you plan to measure your target level of improvement?
How do we get there?	Define the road map and plan for executing your improvement activity.
Did we get there?	Monitor the progress of the plan to determine if the objectives have been met, and whether the processes have been followed. Measure the improvements against the objective. In this step, you can confirm the value delivery and institutionalize the improvements.
How do we keep the momentum going?	Advertise the success of the plan and reinforce any new processes that resulted from meeting the goal. It's important for any improvements to be absorbed into the organization and maintained.

The Seven Step Improvement Process

The CSI process describes how you should actually measure a service and report on your findings.

Note: For the purposes of ITIL Foundation, you should be aware of this seven-step process, but it's not necessary to memorize the details of the steps.

Step	*Description*
1. Strategy for improvement	This follows Phase I of the CSI Approach (What is the vision?), and it precedes the assessment of the current state. As with the CSI Approach, this must also account for the vision and goals of the customer.
2. Define measurements	This is about what you need to measure and are actually capable of measuring. Service providers should reconcile what they should measure and what they can measure.

Step	Description
3. Gather data	Collect the measurements regarding the organization's vision, mission, goals, and objectives.
4. Process data	This step prepares relevant data as appropriate; it differs for each audience.
5. Analyze information and data	In preparation for the presentation to the business, any trends are extrapolated and possible explanations are gleaned.
6. Present and use information	At this stage, any stakeholders are informed about whether or not goals have been achieved. This is accomplished objectively with measurements.
7. Implement improvement	Relevant improvements are made, a new baseline is established, and the cycle begins again.

Purpose, Objectives, and Scope of the Seven Step Improvement Process

Purpose: The purpose of the seven step improvement process is to define and manage the steps required for a successful improvement.

Objectives:

- Identify opportunities for improving services, processes, tools, etc.
- Reduce costs of providing services while maintaining the required level of service.
- Identify what needs to be measured, analyzed, and reported for improvement opportunities.
- Continually align the provided IT service with the required business outcomes, and monitor the service to verify that the service achievements align with current business requirements.

Scope: The seven step improvement process is designed to be applied across all aspects of IT service, including technology, services, processes, organization, and partners. The scope also includes analyzing the cost effectiveness of the improvement to justify that the improvement is worthwhile.

The CSI Register

The *Continual Service Improvement Register (CSI Register)* is a database or structured document used to record and manage improvement opportunities throughout their lifecycle. It is the basis for all potentials and initiatives for the improvement of the service quality over the service life cycle. In the cyclic CSI Register, all activities to improve the service quality are documented. By identifying and tracking the initiatives, there is better communications of the budget and other resources being attributed to service improvement plans or service improvement programs, if a related collection of plans.

The Role of Measurement in CSI

Measurement is not a goal in and of itself; the measurement should always be in service to a goal. There are four legitimate reasons to measure:

- To **validate** previous decisions.
- To **direct** activities to meet targets.
- To **justify** that action is required.
- To **intervene** at the right point and take corrective action.

Balanced Score Card

A *balanced score card* is a measurement tool used in CSI. Essentially, you use four different linked perspectives in order to ensure you have a balanced and complete view of the value associated with the improvement. Those four perspectives are:

- Customer. Consider any customer outcomes and issues, including the risks of not keeping current.
- Internal. Consider what the improvement does to the internal teams in your organization, and what the improvement will mean to internal stakeholders or partners.
- Innovation. Consider what the opportunities are (if any) for innovation. Innovation is also known as learning and growth; that is, are you learning and growing with this improvement?
- Financial. Consider the financial implications, including the cost of the improvement and potential for financial benefit from making the improvement.

Note: While the balanced score card is not specifically addressed on the ITIL Foundation Syllabus, it is a commonly used management tool.

Service Improvement Plan

A primary output of Continual Service Improvement is the creation and implementation of the *Service Improvement Plan (SIP)*, which is sometimes referred to as the Service Improvement Program, depending on the size and scope. After researching and determining the viable improvements to make to the process or processes, IT services, and/or the service management, the SIP is the formal plan to implement those designated improvements, their metrics, and other aspects of coordination and maintenance of the planned improvements. Service Design uses the SIP to put those improvements in motion.

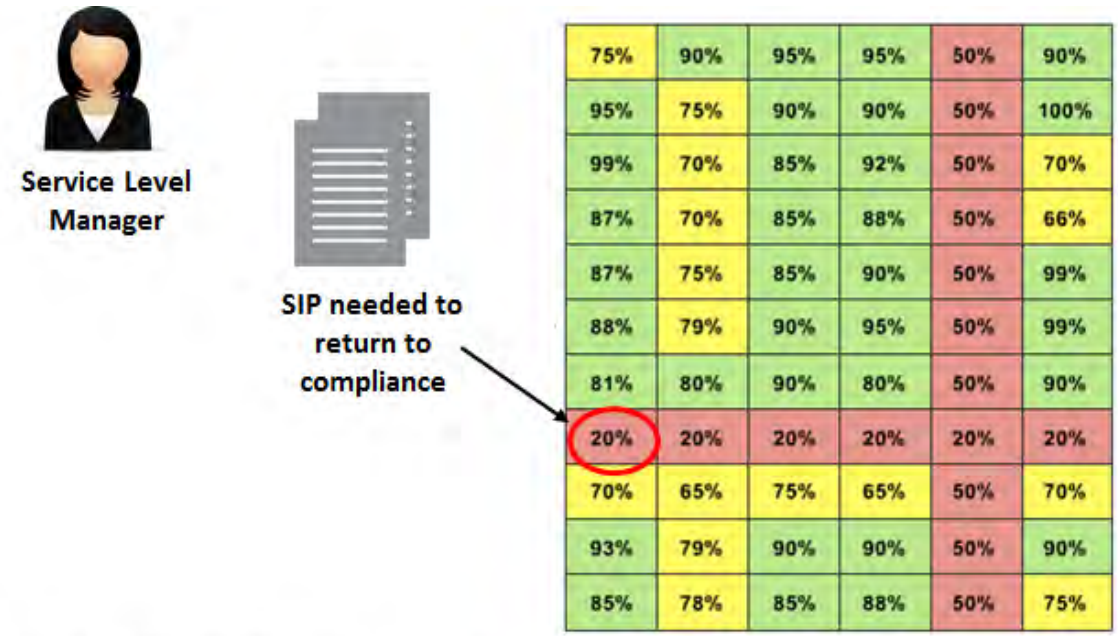

Figure 7-3: An example of a SIP.

Critical Success Factors

A *critical success factor (CSF)* is an element that is essential for achieving the business mission of a service. CSFs can either be qualitative or quantitative. KPIs are used to measure each CSF. Every

ITIL process should have a CSF—or possibly two or three in some cases—and multiple KPIs to measure success against.

Qualitative and Quantitative CSFs

If an organization is trying to improve its printer repair service, then a CSF would be to lower the overall costs of providing that service (a quantitative measurement). Another CSF would be positive feedback from a customer, a qualitative CSF.

Key Performance Indicators

A *Key Performance Indicator (KPI)* is a metric that is used to help manage a process. Although many metrics can and may be measured, only the most important ones are defined as KPIs and used to objectively measure the progress of a process, service, or activity. This, in turn, gives you leverage to take action for improvement.

KPIs and Improvement Consideration

When determining whether an IT service needs improvement, the number of customer complaints would qualify as a KPI. This is an easily measurable way to see if there is a disproportionate amount of feedback for a particular service, and it might make it easier to select the service that is in most need of improvement.

Benchmarks

A *benchmark* is a recorded state of something at a specific point in time. Benchmarking is a process of comparing an organization's performance to industry-standard figures in an effort to provide insight into quality and performance. Organizations evaluate various aspects of their processes in relation to best practices, usually within their own sector. This provides the organization with an opportunity to compare their own services to those of competitors, which may reveal an opportunity that has gone unnoticed.

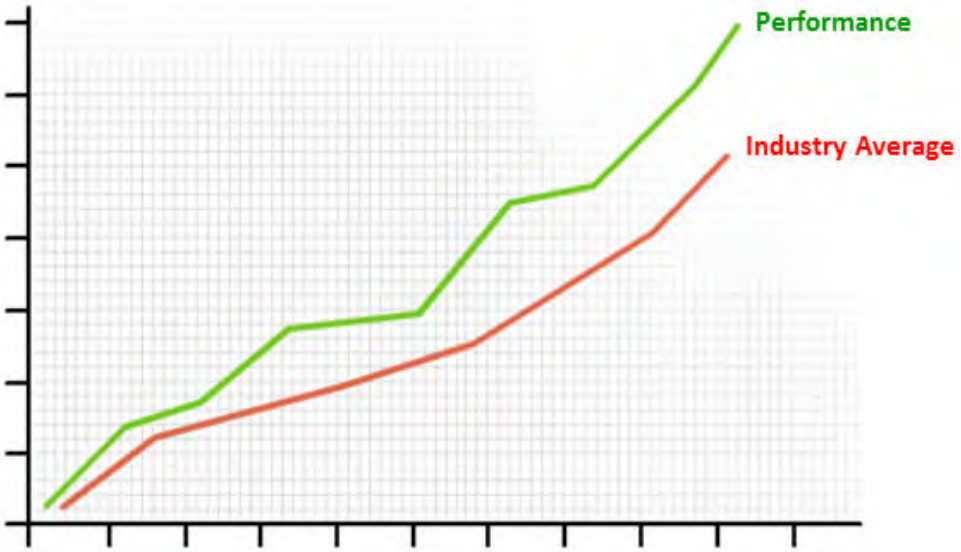

Figure 7-4: Industry benchmarking.

Web-Hosting Benchmarks

Hexa Web Hosting is considering making some improvements to its web hosting plans. Rather than look at its own offerings (such as the size of storage), operating system variety, application server support, and performance (such as percent of uptime), and threats detected or repelled, they have decided to look industry-wide at what competitors are doing. Obviously, a lot of company-specific

information will not be available, but Hexa management will get a good sense of what their entire marketplace looks like, as opposed to just their own services.

Baselines

A *baseline* is a performance snapshot used as a reference point for comparisons both to previous performance and to industry standards. It is necessary to establish a baseline before any meaningful measurement is produced from data, otherwise the information gathered is completely divorced from context. Baselines answer the question "where are we now?"

Onsite and Offsite Baselines

Kevin is a Desktop Support Technician at Mixed Messages Media, supporting both onsite and offsite computer users. Users either call a 1-800 number and speak with an oncall technician who logs the information in a database, or the reporting users log the information in a database themselves, which then generates a job ticket for the next available technician. Managers at Mixed Messages Media wonder if they can improve the response time for service calls initiated by offsite users, so they decide to measure the current response time to use as a baseline. Once they know what the usual response time is for Kevin and his support colleagues, management is better able to note any improvement after they have attempted to alter the service for the better.

Types of Metrics

A *metric* is a measurement of whether a variable has met its defined goal. There are three types of metrics in CSI.

Metric	*What it Measures*
Technology	The performance and availability of technology components and applications.
Process	The performance of service management processes. CSFs and KPIs of processes and their supporting processes are found here.
Service	The end-to-end results of the service, measured by component metrics.

ACTIVITY 7-2

Discussing CSI Principles

Scenario

In this activity, you will discuss basic CSI principles.

---

1. What is the difference between a benchmark and a baseline?

2. KPIs are used to measure the progress of:
   - ☑ Activities
   - ☐ Roles
   - ☑ Services
   - ☑ Processes
   - ☐ Functions

3. In which step of the seven step improvement process are stakeholders informed about whether or not goals have been achieved?
   - ○ Process data
   - ✓ Present and use information
   - ○ Implement the improvement
   - ○ Analyze data

4. Which of the following is the best example of the final stage in the CSI Approach?
   - ✓ Efforts are made to encourage and ensure all IT employees are following the new improvement by having all managers follow the same procedures and speak to its value.
   - ○ IT employees are gathering data on the improvement implementation.
   - ○ Efforts are made to compare the pre-change IT environment with the post-change to evaluate the improvement.
   - ○ The business defines the vision for how the IT organization should operate and goals they should meet in the future.

Summary

In this lesson, you described the CSI core publication of the Service Lifecycle. This will allow you to explain the purpose and scope of Continual Service Improvement in the IT Service Lifecycle and how quality is assured and improvement activities can be applied at any point in the lifecycle of an IT service.

How might you use Plan-Do-Check-Act to control and manage service quality?

Describe either an instance when you have seen the CSI approach in action, or a case from your professional experience where you would apply it.

Note: Check your CHOICE Course screen for opportunities to interact with your classmates, peers, and the larger CHOICE online community about the topics covered in this course or other topics you are interested in. From the Course screen you can also access available resources for a more continuous learning experience.

Course Follow-Up

In this course, you described the fundamental concepts of ITIL, including basic terminology and the certification development path. You also described and examined the five stages of the IT Service Management Lifecycle. This foundation is important whether you need a basic understanding of ITIL, if you need a general awareness of what others are doing with ITIL within your organization, or should you wish to move on to other ITIL certifications in your ITSM career.

What's Next?

Your first step after completing the instructional material in this course should be to download the official ITIL Foundation sample papers from the **Files** tile on your CHOICE course screen. Your instructor should guide you through completing the mock exams, which are an important part of this accredited training course, as well as a key element of your certification preparation.

As you continue your ITIL Foundation Certification, you may be interested in furthering your management skills through a course pertaining to project management, business skills, or communication skills.

A natural next step after ITIL Foundation would be to pursue the ITIL Practitioner credential by taking the *IT Infrastructure Library (ITIL®) Practitioner Certification (2016 Edition)* course provided by Logical Operations. If you wish to move to more advanced levels of ITIL certification, you can pursue ITIL Intermediate courses available from Logical Operations.

You are encouraged to explore ITIL further by actively participating in any of the social media forums set up by your instructor or training administrator through the **Social Media** tile on the CHOICE Course screen.

A Syllabus Mapping

The following tables will assist you in mapping the course content to the ITIL Foundation syllabus.

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
Service Management as a practice	
01-1. Describe the concept of best practices in the public domain	Lesson 1, Topic A
01-2. Describe and explain why ITIL is successful	Lesson 1, Topic A
01-3. Define and explain the concept of a service	Lesson 1, Topic A
01-4. Define and explain the concept of internal and external customers	Lesson 1, Topic A
01-5. Define and explain the concept of internal and external services	Lesson 1, Topic A
01-6. Define and explain the concept of Service Management	Lesson 1, Topic A
01-7. Define and explain the concept of IT Service Management	Lesson 1, Topic A
01-8. Define and explain the concept of stakeholders in service management	Lesson 1, Topic A
01-9. Define processes and functions	Lesson 1, Topic A
01-10. Explain the process model and the characteristics of processes	Lesson 1, Topic A
The ITIL Service Lifecycle	
02-2. Describe the structure of the IT Service Lifecycle	Lesson 1, Topic B
02-3. Account for the purpose, objectives, and scope of Service Strategy	Lesson 1, Topic B Lesson 2, Topic A
02-4. Briefly explain what value service strategy provides to the business	Lesson 1, Topic B Lesson 2, Topic A
02-5. Account for the purpose, objectives, and scope of Service Design	Lesson 1, Topic B Lesson 3, Topic A
02-6. Briefly explain what value Service Design provides to the business	Lesson 1, Topic B Lesson 3, Topic A

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
02-7. Account for the purpose, objectives, and scope of Service Transition	Lesson 1, Topic B Lesson 4, Topic A
02-8. Briefly explain what value Service Transition provides to the business	Lesson 1, Topic B Lesson 4, Topic A
02-9. Account for the purpose, objectives, and scope of Service Operations	Lesson 1, Topic B Lesson 5, Topic A
02-10. Briefly explain what value Service Operation provides to the business	Lesson 1, Topic B Lesson 5, Topic A
02-11. Account for the main purpose, objectives, and scope of Continual Service Improvement	Lesson 1, Topic B Lesson 7, Topic A
02-12. Briefly explain what value Continual Service Improvement provides to the business	Lesson 1, Topic B Lesson 7, Topic A
Generic concepts and definitions	
03-1. Utility and warranty	Lesson 1, Topic A
03-2. Assets, resources, and capabilities	Lesson 2, Topic A
03-3. Service portfolio	Lesson 2, Topic A
03-4. Service catalog (Both two-view and three-view types)	Lesson 2, Topic A Lesson 3, Topic D
03-5. Governance	Lesson 1, Topic A
03-6. Business case	Lesson 2, Topic A
03-7. Risk management	Lesson 2, Topic A
03-8. Service provider	Lesson 1, Topic A
03-10. Supplier	Lesson 3, Topic I
03-11. Service Level Agreement (SLA)	Lesson 3, Topic C
03-12. Operational Level Agreement (OLA)	Lesson 3, Topic C
03-13. Underpinning Contract	Lesson 3, Topic C
03-14. Service Design Package	Lesson 3, Topic A
03-15. Availability	Lesson 3, Topic E
03-16. Service Knowledge Management System (SKMS)	Lesson 4, Topic F
03-17. Configuration item (CI)	Lesson 4, Topic D
03-18. Configuration Management System	Lesson 4, Topic D
03-19. Definitive Media Library (DML)	Lesson 4, Topic D

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
03-20. Change	Lesson 4, Topic C
03-21. Change types (standard, emergency, and normal)	Lesson 4, Topic C
03-24. Event	Lesson 5, Topic B
03-25. Alert	Lesson 5, Topic B
03-26. Incident	Lesson 5, Topic C
03-27. Impact, urgency, and priority	Lesson 5, Topic A
03-28. Service request	Lesson 5, Topic E
03-29. Problem	Lesson 5, Topic D
03-30. Workaround	Lesson 5, Topic A
03-31. Known error	Lesson 5, Topic A
03-32. Known error database	Lesson 5, Topic A
03-33. The role of communication in Service Operation	Lesson 5, Topic A
03-35. Release policy	Lesson 4, Topic E
03-36. Types of Services	Lesson 1, Topic A
03-37. Change proposals	Lesson 4, Topic C
03-38. CSI Register	Lesson 7, Topic B
03-39. Outcomes	Lesson 1, Topic A Lesson 2, Topic A
03-40. Patterns of business activity	Lesson 2, Topic D
03-41. Customers and Users	Lesson 1, Topic A
03-42. The Deming Cycle (plan, do, check, act)	Lesson 7, Topic B
Key Principles and Models	
Service Strategy	
04-2. Describe value creation through services	Lesson 1, Topic A Lesson 2, Topic A
Service Design	
04-3. Understand the importance of people, processes, products, and partners for Service Management	Lesson 3, Topic A

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
04-4. Understand the five major aspects of Service Design:	Lesson 3, Topic B
• Service solutions for new or changed services	
• Management information systems and tools	
• Technology architectures and management architectures	
• The process required	
• Measurement methods and metrics	
Continual Service Improvement	
04-9. Explain the Continual Service Improvement (CSI) approach	Lesson 7, Topic B
04-10. Understand the role of measurement for Continual Service Improvement (CSI) and explain the following key elements:	Lesson 7, Topic B
• Relationship between critical success factors (CSF) and Key Performance Indicators (KPIs)	
• Baselines	
• Types of metrics (technology metrics, process metrics, service metrics)	
Processes	
Service Strategy	
05-2. State the purpose, objectives, and scope for:	
05-21. Service portfolio management:	Lesson 2, Topic C
• The service portfolio	Lesson 2, Topic A
05-22. Financial Management for IT services:	Lesson 2, Topic B
• Business case	Lesson 2, Topic A
05-23. Business relationship management	Lesson 2, Topic E
Service Design	
05-3. Explain the purposes, objectives, scope, basic concepts, process activities, and interfaces for:	
05-31. Service Level Management:	
• Service-based SLA	Lesson 3, Topic C
• Multi-level SLAs	Lesson 3, Topic C
• Service Level Requirements (SLRs)	Lesson 3, Topic C
• Service Level Agreement Monitoring (SLAM) chart	Lesson 3, Topic C
• Service review	Lesson 3, Topic C
• Service Improvement Plan (SIP)	Lesson 7, Topic B
• The relationship between SLM and BRM	Lesson 3, Topic C
05-4. State the purpose, objectives, and scope for:	

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
05-41. Service Catalog Management	Lesson 3, Topic D
05-42. Availability Management: • Service availability • Component availability • Reliability • Maintainability • Serviceability • Vital Business Functions (VBF)	Lesson 3, Topic E
05-43. Information Security Management: • Information security policy	Lesson 3, Topic G
05-44. Supplier Management: • Supplier categories	Lesson 3, Topic I
05-45. Capacity Management: • Capacity plan • Business Capacity Management • Service Capacity Management • Component Capacity Management	Lesson 3, Topic F
05-46. IT Service Continuity Management: • Purpose of Business Impact Analysis (BIA) • Risk Assessment	Lesson 3, Topic H
05-47. Design coordination	Lesson 3, Topic B
Service Transition	
05-5. Explain the purpose, objectives, scope, basic concepts, process activities, and interfaces for:	
05-51. Change Management: • Types of change request • Change models • Remediation planning • Change Advisory Board/Emergency Change Advisory Board • Lifecycle of a normal change	Lesson 4, Topic C
05-6. State the purpose, objectives, and scope for:	
05-61. Release and Deployment Management: • Four phases of release and deployment.	Lesson 4, Topic E
05-62. Knowledge Management: • Data-to-Information-to-Knowledge-to-Wisdom (DIKW) and Service Knowledge Management System (SKMS)	Lesson 4, Topic F
05-63. Service Asset and Configuration Management (SACM)	Lesson 4, Topic D

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
05-64. Transition planning and support	Lesson 4, Topic B
Service Operation	
05-7. Explain the purpose, objectives, scope, basic concepts, process activities, and interfaces for:	
05-71. Incident Management	Lesson 5, Topic C
05-72. Problem Management	Lesson 5, Topic D
05-8. State the purpose, objectives, and scope for:	
05-81. Event Management	Lesson 5, Topic B
05-82. Request Fulfillment	Lesson 5, Topic E
05-83. Access Management	Lesson 5, Topic F
Continual Service Improvement	
05-9. State the purpose, objectives, and scope for:	
05-91. The seven-step improvement process	Lesson 7, Topic B
Functions	
06-1. Explain the role, objectives, and organizational structures for:	
• The Service Desk function	Lesson 6, Topic A
06-2. State the role and objectives for:	
• The Technical Management function	Lesson 6, Topic B
• The Application Management function with application development	Lesson 6, Topic D
• The IT Operations Management function (IT Operations control and facilities management)	Lesson 6, Topic C
Roles	
07-1. Account for the role and the responsibilities of the: • Process owner • Process manager • Process practitioner • Service owner	Lesson 1, Topic A
07-2. Recognize the Responsible, Accountable, Consulted, Informed (RACI) responsibility model and explain its role in determining organizational structure	Lesson 1, Topic A
Technology and Architecture	
08-2. Understand how service automation assists with expediting Service Management processes	Lesson 1, Topic A
Competence and Training	
09-1. Competence and skills for service management	Lesson 1, Topic A

ITIL Objective	*ITIL Foundation Certificate Lesson and Topic Reference*
09-2. Competence and skills framework	Lesson 1, Topic A
09-3. Training	Lesson 1, Topic A
Mock exam	
10-1. Sit a minimum of one ITIL Foundation mock exam	Official sample papers available from course files on CHOICE.

Mastery Builders

Mastery Builders are provided for selected lessons within this course to provide the opportunity to apply the learning objectives associated with those lessons.

Mastery Builder 2-1

Reviewing ITIL Basics and Service Strategy

Activity Time: 25 minutes

Scenario

In this activity, you will review the various concepts and processes of ITIL and Service Strategy.

---

1. **Which of the following are stages of the service lifecycle?**
   1. Service optimization
   2. Service transition
   3. Service delivery
   4. Service strategy

   Select the correct answer.

   - ○ All of the above
   - ○ 1 and 4 only
   - ○ 2 and 3 only
   - ○ 2 and 4 only

2. **What roles are defined in the RACI model?**
   - ○ Recommender, Approver, Connector, Informer
   - ○ Responsible, Aligned, Consulted, Implemented
   - ○ Responsible, Accountable, Consulted, Informed
   - ○ Responsible, Achiever, Corrector, Implementer

3. **All processes share which one or more of the following characteristics?**
   1. Measurability
   2. Delivery of a specific result
   3. Conformance with regulatory standards

   Select the correct answer.

   - ○ All of the above
   - ○ 1 and 3 only
   - ○ 1 and 2 only
   - ○ 2 and 3 only

4. **Which statement about value creation through services is CORRECT?**
   - ○ How the customer perceives the service is an important factor in value creation.
   - ○ Financial measures ultimately determine service value.
   - ○ The service provider's perception of the service is an important component in determining service value.
   - ○ Market forces ultimately determine service value.

5. **Which one of the following statements about internal and external customers is MOST correct?**
   - ○ External customers' needs should be prioritized higher for financial reasons.
   - ○ Internal customers' needs should be prioritized higher to ensure continued functioning of the business.
   - ○ Internal and external customers' needs should be prioritized on a first-in/first-out basis.
   - ○ Internal and external customers should receive the service levels that have been negotiated and agreed upon.

6. **What aspect of IT services is it most important for a provider to deliver to customers?**
   - ○ Capabilities
   - ○ Value
   - ○ Cost reduction
   - ○ Risk mitigation

7. **What is the best description of "Warranty of a service"?**
   - ○ The service is fit for purpose.
   - ○ The service is fit for use.
   - ○ The service will have no problems within a specified period of time after release.
   - ○ Customers are assured of certain levels of availability, capacity, continuity, and security.

8. **Which stage of the service lifecycle decides what services should be offered and to whom they should be offered?**
   - ○ Service operation
   - ○ Service design
   - ○ Service strategy
   - ○ Service transition

9. **Which stakeholder group is MOST appropriate to define the value of a service?**
   - ○ Regulatory agencies
   - ○ Customers
   - ○ IT management and staff
   - ○ Shareholders

10. What is the basic purpose of a RACI chart?

- ○ To document customer requirements for a new service or process
- ○ To perform “what-if” analysis
- ○ To document the roles and responsibilities of stakeholders in a process or activity
- ○ To document agreed-upon service levels for internal and external customers

11. Which stage of the service lifecycle provides a framework for evaluating service capabilities and risk profiles before new or changed services are deployed?

- ○ Service strategy
- ○ Service design
- ○ Service transition
- ○ Continual service improvement

12. Which of the following tasks are most appropriate for the service owner to perform?

1. Monitoring the performance of a specific service.
2. Updating the configuration management system (CMS) after a change.
3. Helping to identify service improvements.
4. Representing a specific service in change advisory board (CAB) meetings.

Select the correct answer.

- ☐ All of the above
- ☐ 1, 2, and 3 only
- ☐ 1, 3, and 4 only
- ☐ 2, 3, and 4 only

13. Which of the following are key ITIL characteristics that contribute to its success?

1. It is a standard.
2. It is vendor-neutral.
3. It is non-prescriptive.
4. It is a best practice.

Select the correct answer.

- ☐ All of the above
- ☐ 2 and 3 only
- ☐ 1, 2, and 3 only
- ☐ 2, 3, and 4 only

14. As a service provider, what should be your default response to a customer's request for a new service?

- ○ Fulfill it if it is an external customer who will pay for the service.
- ○ Perform due diligence to determine if the request will be fulfilled.
- ○ Fulfill it based on organizational priorities if it is an internal customer.
- ○ Ensure that any request is fulfilled.

15. In a service management project, which of these might you identify as stakeholders?

1. Users
2. Customers
3. Suppliers
4. Functions

Select the correct answer.

- ○ All of the above
- ○ None of the above
- ○ 1 and 2 only
- ○ 1, 2, and 4 only

16. Which one of the following statements is CORRECT for any of the ITIL processes?

- ○ It defines functions as part of its design.
- ○ It is implemented by an external service provider in support of a customer.
- ○ It is an organizational grouping responsible for well-defined outcomes.
- ○ It delivers results to a customer or stakeholder.

17. Which of the following statements about functions are CORRECT?

1. They may include tools.
2. They use resources to carry out one or more activities.
3. Each person or group performs a single function.
4. They cost more to implement than processes do.

Select the correct answer.

- ☐ All of the above
- ☐ 1 and 2 only
- ☐ 2 and 4 only
- ☐ 1, 2, and 3 only

18. Which statement regarding the relationship between service assets, resources, and capabilities is true?

- ○ Resources include service assets and capabilities.
- ○ Service assets include resources and capabilities.
- ○ Capabilities include service assets and resources.

19. Which process of Service Strategy involves the analysis of Patterns of Business Activities (PBAs)?

- ○ Financial Management
- ○ Service Portfolio Management
- ○ Capacity Management
- ○ Demand Management

20. What process is hallmarked by the steps Define, Analyze, Approve, and Charter?

- ○ Service Portfolio Management (SPM)
- ○ Patterns of Business Activity (PBA)
- ○ Business Impact Analysis (BIA)
- ○ Service asset and configuration management (SACM)

21. What is the result of underestimating the level of demand for a service? Of overestimating the demand for a service?

22. Which process of Service Strategy involves using a Business Impact Analysis (BIA) to determine the impact of a service outage?

- ○ Service Portfolio Management
- ○ Demand Management
- ○ Financial Management
- ○ Business Continuity Management

23. Which one of the following questions might be addressed during Service Portfolio Management?

- ○ What is an acceptable budget for this new service?
- ○ Why should a customer be interested in this service?
- ○ How much demand will there be for this service next month?
- ○ What funding model should be used?

Mastery Builder 3-1

Reviewing Service Design

Activity Time: 25 minutes

Scenario

In this activity, you will review the various concepts and processes of Service Design.

---

1. **Samuel establishes a formal agreement with a client to set up the service's hours of operation, transaction response times, and throughput expectations. What process of Service Design is this activity a part of?**
   - ○ Supplier Management
   - ○ Service Level Management
   - ○ Availability Management
   - ○ Capacity Management

2. **True or False? The ability of an organization to restore service operations after a catastrophic failure is the goal of availability management.**
   - ☐ True
   - ☐ False

3. **What is the difference between an SLA and an OLA?**

4. **Which statement best describes the reliability of a service?**
   - ○ It takes roughly 45 minutes to restore functionality to the server once it goes down.
   - ○ It has been 12 days since the server was last unavailable.
   - ○ It takes an Internet service provider (ISP) about two hours to resolve an outage to a business that provides web hosting, but the agreed-upon response time is one hour.
   - ○ There are 150 clients that rely on a service to be available during normal business hours.

5. **What is the difference between Business Capacity Management, Service Capacity Management, and Component Capacity Management?**

6. **What are some of the technical and non-technical aspects of Information Security Management that require attention?**

7. **Which process of Service Design makes use of a Capacity Management Information System (CMIS)?**
   - ○ Service Catalog Management
   - ○ Change Management
   - ○ Capacity Management
   - ○ Information Security Management

8. **Which of the following is the BEST description of an operational level agreement (OLA)?**
   - ○ An agreement between an IT service provider and another part of the same organization that assists in the provision of services.
   - ○ An agreement between an IT service provider and an external customer defining key targets and responsibilities of both parties.
   - ○ An agreement between an IT service provider and a third-party supplier about the levels of service required by the customer.
   - ○ An agreement between a third-party supplier and an internal customer about required response times when an incident is reported.

9. **What is the MAIN purpose of availability management?**
   - ○ To monitor and report on availability of components.
   - ○ To negotiate performance targets in service level agreements (SLAs).
   - ○ To report financial performance to stakeholders.
   - ○ To ensure that service availability meets the agreed-upon needs of the business.

10. **Which is NOT one of the three sub-processes of capacity management?**
    - ○ Business capacity management
    - ○ Service capacity management
    - ○ Supplier capacity management
    - ○ Component capacity management

11. **Which process is responsible for reviewing operational level agreements (OLAs) on a regular basis?**
    - ○ IT service continuity management
    - ○ Service level management
    - ○ Design coordination
    - ○ Service catalog management

12. Who should be granted access to the information security policy?

- ○ Information security management only
- ○ Senior business managers and IT staff
- ○ Customers and all IT managers and staff
- ○ All customers and users and all IT staff

13. Which of the following are valid elements of a service design package (SDP)?

1. Agreed and documented business requirements
2. A plan for transition of the service
3. IT staff calendars
4. Metrics to measure the service

Select the correct answer.

- ○ All of the above
- ○ 1 only
- ○ 2 and 3 only
- ○ 1, 2, and 4 only

14. Which one of the following activities is NOT part of the service level management (SLM) process?

- ○ Designing the SLA framework.
- ○ Designing the configuration management system from a business perspective.
- ○ Monitoring service performance against service level agreements (SLAs).
- ○ Reviewing contracts and operational level agreements (OLAs).

15. Which one of the following should a service catalog contain?

- ○ SLA documentation
- ○ The organizational structure of the company
- ○ Details of all operational services
- ○ Inventories of technical assets

16. Which of the following processes are concerned with managing risks to services?

1. IT service continuity management
2. Information security management
3. Availability management

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ○ 1 and 3 only
- ○ 2 and 3 only

17. Which one of the following is the CORRECT list of the four Ps of service design?
   - ○ People, problems, partners, processes
   - ○ Products, people, planning, partners
   - ○ Problems, processes, planning, perspective
   - ○ People, partners, products, processes

18. Service Level Management could consider input from which processes when negotiating service level agreements (SLAs)?
   - ○ Any of the other ITIL processes
   - ○ Capacity Management and Availability Management only
   - ○ Supplier Management and Business Relationship Management only
   - ○ Demand Management and Release and Service Portfolio Management only

19. Which process would assist with the identification and resolution of any incidents and problems associated with service or component performance?
   - ○ Capacity Management
   - ○ Supplier Management
   - ○ Information Security Management
   - ○ Service Catalog Management

20. Which two processes will be involved the MOST in negotiating and agreeing on contracts for the provision of recovery capability to support continuity plans?
   - ○ Service Level Management and Capacity Management
   - ○ Supplier Management and Service Level Management
   - ○ IT Service Continuity Management and Service Level Management
   - ○ IT Service Continuity Management and Supplier Management

21. Which of the following is NOT a type of service level agreement (SLA) described in the ITIL service design publication?
   - ○ Service-based SLA
   - ○ Technology-based SLA
   - ○ Multi-level SLA
   - ○ Customer-based SLA

22. Which one of the following is NOT a purpose or objective of Availability Management?
   - ○ To monitor and report on the availability of components
   - ○ To ensure that service availability matches the agreed-upon needs of the business
   - ○ To assess the impact of changes on the availability plan
   - ○ To ensure that business continuity plans are aligned to business objectives

23. Which one of the following is a CORRECT description of the "Four Ps" of service design?

- ○ The four steps in the process of designing effective service management.
- ○ The four categories of stakeholders who influence service design.
- ○ The four questions you should ask when reviewing design specifications.
- ○ The four major areas you need to consider during service design.

24. Which of the following are responsibilities of supplier management?

1. Negotiating operational level agreements (OLAs)
2. Ensuring that suppliers meet business expectations
3. Maintaining information in a supplier and contractor management information system
4. Negotiating external agreements to support the delivery of services

Select the correct answer.

- ○ All of the above
- ○ 1, 2, and 3 only
- ○ 1, 3, and 4 only
- ○ 2, 3, and 4 only

Mastery Builder 4-1

Reviewing Service Transition

Activity Time: 20 minutes

Scenario

In this activity, you will review various concepts and processes of Service Transition.

---

1. **Describe the four levels of the DIKW Model and how it serves as the basis for sound decision making.**

2. **An extra level of support is provided to assist users who are just getting accustomed to a new version of an in-house application. What process is this a part of?**
   - ○ Change management
   - ○ Service asset and configuration management (SACM)
   - ○ Release and deployment management
   - ○ Knowledge management

3. **What process of Service Transition involves maintaining the DML?**
   - ○ Change management
   - ○ Service asset and configuration management (SACM)
   - ○ Release and deployment management
   - ○ Knowledge management

4. **What is the difference between release policy and release design? What would be an example of each?**

5. What does the Configuration Management System (CMS) serve as the foundation of?
   - ○ Change Advisory Board (CAB)
   - ○ Definitive Media Library (DML)
   - ○ Configuration Management Database (CMDB)
   - ○ Service Knowledge Management System (SKMS)

6. What is the purpose of conducting a Post Implementation Review (PIR)?

7. What types of changes are usually included within the scope of change management?
   1. Changes to a mainframe computer
   2. Changes to business strategy
   3. Changes to a service level agreement (SLA)
   4. The retirement of a service

   Select the correct answer.
   - ○ All of the above
   - ○ 1, 3, and 4 only
   - ○ 1 and 4 only
   - ○ 2, 3, and 4 only

8. Which process is responsible for recording relationships between service components?
   - ○ Service asset and configuration management (SACM)
   - ○ Transition planning and support
   - ○ Knowledge management
   - ○ Release and deployment management

9. Which of the following does service transition provide guidance on?
   1. Introducing new services
   2. Creating a business case
   3. Transfer of services between service providers

   Select the correct answer.
   - ○ All of the above
   - ○ 1 and 2 only
   - ○ 2 only
   - ○ 1 and 3 only

10. **Which one of the following statements about a configuration management system (CMS) is CORRECT?**

- ○ The CMS should not contain corporate data about customers and users.
- ○ There is only one CMS.
- ○ There should not be more than one configuration management database (CMDB).
- ○ It is not needed if an organization outsources its IT services.

11. Which of the following would be stored in the definitive media library (DML)?

1. Copies of purchased software
2. Copies of internally developed software
3. SLAM and RACI charts
4. The change schedule

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ○ 3 and 4 only
- ○ 1, 2, and 3 only

12. Which of the following does the release and deployment management process address?

1. Ensuring release packages can be tracked.
2. Authoring changes to support the process.
3. Defining and agreeing release and deployment plans.

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ○ 2 and 3 only
- ○ 1 and 3 only

13. **Which statement about the relationship between the configuration management system (CMS) and the service knowledge management system (SKMS) is CORRECT?**

- ○ The SKMS is one component of the CMS.
- ○ The CMS is part of the SKMS.
- ○ The SKMS is an older term for the CMS.
- ○ The CMS contains higher-level information than the SKMS.

14. **What is the role of the emergency change advisory board (ECAB)?**

- ○ To assist the change manager in evaluating emergency changes and determining whether to authorize them.
- ○ To assist the change manager by implementing emergency changes.
- ○ To assume decision-making responsibility for emergency changes from the change manager.
- ○ To assist the change manager by making sure emergency changes are implemented as quickly as possible.

15. Which one of the following statements about a standard change is INCORRECT?

- It is pre-authorized by change management.
- It is relatively common.
- It is low risk.
- It requires a Request for Change (RFC).

16. Which one of the following maintains relationships between all service components?

- The configuration baselines
- The definitive media library
- The configuration management system
- The service catalog

17. Which of the following activities does service asset and configuration management ensure are performed?

1. Configuration items (CIs) are identified.
2. CIs are baselined.
3. CIs are purchased or acquired internally.

Select the correct answer.

- All of the above
- 1 and 2 only
- 1 and 3 only
- 2 and 3 only

18. Which process is primarily responsible for packaging, building, testing, and deployment services?

- Transition planning and support
- Service asset and configuration management
- Release and deployment management
- Knowledge management

19. Which statements about a change model are CORRECT?

1. A change model should be used for both standard and emergency changes.
2. A change model should be constructed when a significant change is required.
3. A change model defines the steps that should be taken to handle a particular type of change.
4. Escalation procedures are outside the scope of a change model.

Select the correct answer.

- All of the above
- 1 and 2 only
- 1 and 3 only
- 1, 2, and 4 only

Mastery Builder 6-1

Reviewing Service Operation

Lesson Time: 35 minutes

Scenario

In this activity, you will review various concepts and processes of Service Operation.

---

1. What is the difference between a problem and an incident?

2. If a user is choosing a desired service from an automated menu, what process is she participating in?
   - ○ Event Management
   - ○ Request Fulfillment
   - ○ Incident Management
   - ○ Access Management

3. Explain your choice from Question #2.

4. Robert is investigating the root cause of a Dynamic Host Configuration Protocol (DHCP) server crash. What process is he participating in?
   - ○ Event Management
   - ○ Incident Management
   - ○ Problem Management
   - ○ Access Management

5. Arthur is investigating the cause of the entire staff's desktop passwords being reset after work on Friday. What process is he participating in?
   - ○ Event Management
   - ○ Incident Management
   - ○ Problem Management
   - ○ Access Management

6. Sheila is reviewing a security log file that shows an employee entered the building and used his computer at midnight the night before. What process is she participating in?
   - ○ Event Management
   - ○ Incident Management
   - ○ Problem Management
   - ○ Access Management

7. What is the importance of a known error database?

8. Maureen works as a database support specialist. She has been notified that a user logged into a current database with a valid, though retired, user name. What has been brought to her attention?
   - ○ An event
   - ○ An incident
   - ○ A problem
   - ○ An alarm

9. How do IT Operations Management and Technical Management fit together?

10. How do the Service Operation functions create value for the customer?

11. What is the difference between a Service Desk and an operations bridge?

12. What is the difference between IT Operations Management and Technical Management?

13. **Which of the following is NOT a purpose of service operation?**
    - To design services to satisfy business objectives.
    - To deliver and manage IT services.
    - To manage the technology used to deliver services.
    - To monitor the performance of technology and processes.

14. Which of the following statements about problem management is/are CORRECT?
    1. It assigns prioritization codes to manage how problems are handled by staff.
    2. It documents known errors, workarounds, and resolutions

    Select the correct answer.
    - 1 only
    - 2 only
    - Both of the above
    - Neither of the above

15. **What is the purpose of the request fulfillment process?**
    - Enabling users to request and receive standard services.
    - Making sure all requests internal to the organization are fulfilled.
    - Implementing emergency changes.
    - Making sure service level agreement (SLA) terms are met.

16. **Which one of the following BEST summarizes the purpose of event management?**
    - To detect, manage, and monitor the lifecycle of events.
    - To restore normal service after an event is detected.
    - To provide supervision and structure for IT staff members.
    - To monitor service performance against service level agreements (SLAs).

17. **Which one of the following is a benefit of using an incident model?**
    - It assists in determining the root causes of incidents.
    - It enables negotiation of favorable terms in service level agreements (SLAs).
    - It provides a standardized approach for processing particular types of incidents.
    - It reduces the average time needed to resolve most incidents.

18. **After identification and logging, which is the correct next activity in the sequence of activities for handling an incident?**
    - categorization
    - prioritization
    - initial diagnosis
    - investigation

19. **Which one of the following represents the BEST course of action to take when a problem workaround is found?**

- ○ Close the problem record and document the workaround in a request for change (RFC).
- ○ Document the workaround in the open problem record.
- ○ Leave the problem record open and document the workaround in any related incident records.
- ○ De-escalate and de-prioritize the open problem record.

20. **Which one of the following statements about the known error database (KEDB) is MOST correct?**

- ○ The KEDB is another term for the service knowledge management system (SKMS).
- ○ Using the KEDB during incident diagnosis may speed up the resolution process.
- ○ It contains records for major problems only.
- ○ Users should not have access to the KEDB.

21. Which of the following statements is/are CORRECT?

1. Problem management can help the service desk resolve incidents quickly by providing information about known errors.
2. Problem management is dedicated to restoring normal service as defined in the service level agreement (SLA).

Select the correct answer.

- ○ 1 only
- ○ 2 only
- ○ Both of the above
- ○ Neither of the above

22. **A failure has occurred on a system and is detected by a monitoring tool. This system supports a live IT service. When should an incident be raised?**

- ○ Not until an outage is reported by a user.
- ○ When a known workaround exists.
- ○ As part of routine log reviews.
- ○ Immediately, to limit or prevent impact on users.

23. **Which one of the following is the BEST example of a workaround for a printer that is out of service?**

- ○ A technician connects a user to an alternative printer during repairs on the primary printer.
- ○ A technician orders a replacement printer and installs it when it arrives.
- ○ Users temporarily avoid printing.
- ○ A technician repairs the primary printer and updates the known error database (KEDB).

24. **Which one of the following is the BEST definition of an incident model?**

- ○ A consistent sequence of activities for handling incidents efficiently.
- ○ A template used to create standardized incident records.
- ○ Definitions of incident types and associated response times as documented in the service level agreement (SLA).
- ○ A set of pre-defined steps to be followed when dealing with a known type of incident.

25. Which one of the following is the BEST definition of an event?

- ○ A service disruption caused by a technical issue.
- ○ An interaction of a user with the service desk.
- ○ A change of state that has significance for the management of an IT service.
- ○ The release of a service update into the live environment.

26. Which of the following should be treated as an incident?

1. A user is unable to access a service during service hours.
2. Downtime is required to release a planned upgrade.
3. A network device log indicates a temporary increase in demand that is within device capacity thresholds.
4. A user contacts the service desk about the slow performance of an application.

Select the correct answer.

- ○ All of the above
- ○ None of the above
- ○ 1 and 4 only
- ○ 2 and 3 only

27. Which service operation processes are missing from the following list?

1. Incident management
2. Problem management
3. Access management
4. ?
5. ?

Select the correct answer.

- ○ Event management and request fulfillment
- ○ Event management and knowledge management
- ○ Change management and request fulfillment
- ○ Change management and capacity management

28. Which one of the following BEST describes a major problem review?

- ○ Facilitated by the problem manager, a major problem review is designed to determine organizational responsibility for the problem.
- ○ Facilitated by the change manager, a major problem review enables the emergency change advisory board (ECAB) to determine whether to authorize the emergency change.
- ○ Facilitated by the service desk manager, a major problem review determines the organization's level of financial and legal responsibility when a service level agreement (SLA) has been breached.
- ○ Facilitated by the problem manager, a major problem review identifies lessons learned from the major problem, and improves performance of support staff through training and awareness.

29. What is the BEST description of IT operations control?

- It prepares and releases updates to services.
- It monitors and executes operational activities and events.
- It is a group of technologies that monitor and log status and performance of configuration items (CIs).
- It is a way to outsource routine infrastructure monitoring.

30. Which of the following statements about the service desk is/are CORRECT?

1. The service desk is a function that provides a single point of contact between the service provider and users.
2. The service desk should be the owner of the problem management process.

Select the correct answer.

- Both of the above
- Neither of the above
- 1 only
- 2 only

31. Which of the following statements about the service desk are CORRECT?

1. It is a function that provides a means of communication between IT and its users for all operational issues.
2. It manages events, incidents, and problems.
3. It is synonymous with the term Help Desk.
4. One of its goals is to restore service as quickly as possible.

Select the correct answer.

- All of the above
- 1 and 4 only
- 2 and 4 only
- 2 and 3 only

32. Which one of the following is the BEST description of the activities carried out by facilities management?

- It manages services that are dependent on hardware appliances, such as printers or network access points.
- It provides general management of the physical IT environment, such as a data center or computer room.
- It supervises the service desk.
- It acquires and maintains the technical resources that are used by IT operations staff to maintain the infrastructure.

Mastery Builder 7-1

Reviewing Continual Service Improvement

Activity Time: 15 minutes

Scenario

In this activity, you will review various concepts and processes of Continual Service Improvement (CSI).

---

1. **Rudison Technologies wishes to improve the quality of internal service calls. What is this an example of?**
   - ○ A Key Performance Indicator (KPI)
   - ○ A Plan-Do-Check-Act (PDCA)
   - ○ A critical success factor (CSF)
   - ○ A metric

2. **Fuller & Ackerman Publishing wishes to reduce its IT costs. What are some potential Key Performance Indicators (KPIs) to achieve this?**

3. **If Fuller & Ackerman Publishing is trying to reduce its IT costs by reducing the cost of responding to printer incidents, what kinds of metrics might they choose to look at?**

4. **Which of the following shows steps of the CSI Approach appearing in the correct order?**
   - ○ What is the vision?; Where do we want to be?; Where are we now?; How do we get there?
   - ○ What is the vision?; Where are we now?; Where do we want to be?; How do we get there?
   - ○ Where do we want to be?; How do we get there?; What is the vision?; Where are we now?
   - ○ What is the vision?; Where do we want to be?; Did we get there?; Where are we now?

5. **Which step in the CSI Approach considers the areas of focus for potential improvements, gets clear understanding of the organization's mission, and maps out the organization's stakeholders?**
   - ○ What is the vision?
   - ○ Where are we now?
   - ○ How do we get there?
   - ○ Did we get there?

6. **If you are performing analysis and benchmarking to determine the current state of your services, which phase of the CSI Approach are you pursuing?**
   - ○ What is the vision?
   - ○ Where are we now?
   - ○ Where do we want to be?
   - ○ How do we get there?

7. Which of the following are metrics described in Continual Service Improvement (CSI)?
   1. Process metrics
   2. Service metrics
   3. Personnel metrics
   4. Technology metrics

   Select the correct answer.
   - ○ All of the above
   - ○ 1 and 4 only
   - ○ 2 and 4 only
   - ○ 1, 2, and 4 only

8. Which of the following statements about Key Performance Indicators (KPIs) and metrics are CORRECT?
   1. Service metrics measure the end-to-end service.
   2. Each KPI should relate to a critical success factor.
   3. Metrics can be used to identify improvement opportunities.
   4. KPIs can be both qualitative and quantitative.

   Select the correct answer.
   - ○ All of the above
   - ○ 1 only
   - ○ 2 and 3 only
   - ○ 1, 2, and 4 only

9. **Which one of the following is the CORRECT list of stages in the PDCA Model (Deming Cycle)?**
   - ○ Prepare, Do, Confirm, Act
   - ○ Prepare, Delivery, Check, Advise
   - ○ Plan, Do, Check, Act
   - ○ Plan, Do, Confirm, Assess

10. Which of the following does Continual Service Improvement (CSI) provide guidance on?

1. How to improve process efficiency and effectiveness.
2. How to improve services.
3. Improvement of all stages of the service lifecycle.

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ○ 1 and 3 only
- ○ 2 and 3 only

11. There are a number of activities and techniques that align with the CSI approach. Which activity would BEST help a business understand "where are we now?"?

- ○ Implementing a Service Improvement Plan (SIP).
- ○ Updating the CSI register.
- ○ Reviewing performance against a baseline.
- ○ Determining feasibility of a proposed improvement.

Solutions

ACTIVITY 1-1: Discussing Basic ITIL Concepts

1. A Service Desk is an example of:
   - ○ A process model.
   - ◉ A function.
   - ○ An activity.
   - ○ A process.

2. An action or set of actions designed to achieve a certain result is:
   - ○ A role.
   - ○ A function.
   - ◉ An activity.
   - ○ A process.

3. True or False? According to ITIL, roles and responsibilities need to be distributed evenly among team members.
   - ☐ True
   - ☑ False

4. A Service Desk employee is helping a user change their password. This operation is an example of:
   - ○ A process.
   - ◉ An activity.
   - ○ A function.
   - ○ A role.

5. **Which of the following statements best reflects the warranty aspect of value creation?**

   ○ Upgraded switches allow for increased traffic bandwidth.

   ○ A new service desk ticket interface allows support requests to be submitted faster.

   ○ An application is patched so that users running older operating systems can still use it.

   ◉ An antivirus software vendor agrees to support any machines that manage to become infected.

6. **What is the responsibility of the Process Owner?**

   ○ Coordinate and deploy high-quality solutions.

   ○ Ensure that the process adheres to federal regulations.

   ○ Coordinate and design all required technology for the service.

   ◉ Ensure that the process is being performed according to documentation.

ACTIVITY 1-2: Examining ITIL Certification Schemes (Optional)

2. **What are the available ITIL certification options?**

   A: Options include Foundation Level, Practitioner Level, Intermediate Level, Expert Level, and Master Level.

3. **Expand the Foundation Level section and then select the ITIL Foundation Level page link. This page lists several areas of knowledge that you will become more familiar with by the end of the course. Of the listed items, which do you feel are most applicable to you in your profession?**

   A: Answers will vary, but may lean more toward Roles, Functions, and Processes if the student deals with staffing in their job; or it could lean more toward Processes and the Service Lifecycle if their job is more geared toward design, dealing with SLAs, or evaluating a Service Desk.

5. **How is the ITIL Practitioner credential different from the ITIL Foundation credential?**

   A: As the name implies, ITIL Practitioner teaches you how to apply the foundational knowledge of ITIL best practices to real-world situations and scenarios.

6. **Select the Back button in your browser again, and follow the links to view the ITIL Intermediate Level page. What are the differences between the two possible streams of education that you can take to reach this certification level?**

   A: The Intermediate Level certification can be achieved through the Service Lifecycle modules or the Service Capability modules. The Service Lifecycle modules focus on the five stages of the ITIL Lifecycle, while the Service Capability modules deal with process activities and their execution throughout specific stages.

7. **Which of these two streams might you consider most if you were to continue your education beyond the Foundation level? What might prove to be more beneficial to you in your organization?**

   A: Answers will vary, but the Service Capability modules might be more attractive if you want specialized technical knowledge about the ITIL processes and the daily execution of ITIL practices. The Service Lifecycle modules might be more desirable if you want to focus on the management of the ITIL processes and practices used. Depending on your interests, you might also choose modules from both streams in order to obtain both technical and management knowledge.

8. **Select the Back button in your browser, and follow the links to the ITIL Master Level. According to the site, how is this level reached? Why might a person seek this level of qualification?**

   A: The ITIL Master qualification is reached by those who already hold the ITIL Expert qualification, and who have extensive experience (at least five years) in the industry. Candidates must demonstrate real-world situations where ITIL knowledge has been applied to create a solution. The value to the candidate can be for professional advancement or for providing additional value to the business.

ACTIVITY 1-3: Discussing the Stages of the Service Lifecycle

1. **The lifecycle stage concerned with building and testing a service before it is delivered to customers is:**
   - ○ Service Design
   - ○ Service Operation
   - ◉ Service Transition
   - ○ Continual Service Improvement

2. **The lifecycle stage concerned with financial planning is:**
   - ○ Service Design
   - ◉ Service Strategy
   - ○ Service Operation
   - ○ Service Planning

3. **Which is a larger, all-encompassing stage in the IT Service Lifecycle and also a stage that can be applied at any point in the lifecycle?**
   - ○ Service Transition
   - ○ Service Measurement
   - ○ Service Design
   - ◉ Continual Service Improvement

4. **Which lifecycle stage consists of processes and functions that are required for the service to be provided at the agreed-upon service level?**
   - ○ Service Design
   - ◉ Service Operation
   - ○ Service Transition
   - ○ Service Strategy

5. **Which service lifecycle stage ensures that measurement methods will provide the required metrics for new or changed services?**
   - ○ Service strategy
   - ◉ Service design
   - ○ Service transition
   - ○ Service operation

ACTIVITY 2-1: Discussing Basic Concepts of Service Strategy

1. **An IT service provider may not be able to support a new service without adding staff. What type of risk does this represent?**
   - ○ Market risk
   - ○ Contract risk
   - ○ Design risk
   - ◉ Operational risk

2. **True or False? Within the service portfolio, services that are either under consideration or in development are part of the service catalog.**
   - ☐ True
   - ☑ False

3. **Any resource or capability that can contribute to the delivery of a service is a:**
   - ○ warranty.
   - ◉ service asset.
   - ○ service portfolio.
   - ○ service catalog.

4. **What is the role of a business case?**

   A: A business case is a carefully reasoned document that justifies the need for a particular service. It uses reasoning and evidence to see if there's a clear benefit to carrying out the improvement. This is the first step in ensuring that the service's investment does not exceed the return.

5. **What are some of the pieces of information typically found within a business case?**

   A: A business case usually contains an introduction, methods and assumptions, business impacts, risks and contingencies, and recommendations.

ACTIVITY 2-2: Discussing the Financial Management Process

1. The department of an organization is charged any time it uses a specific service from an IT service provider. What does this describe?
   - ○ Rolling plan
   - ◉ Chargeback
   - ○ Indirect costs
   - ○ Service level agreement

2. What provides a framework that defines the acceptable permitted amount of expenses in order to provide a service?
   - ○ Financing
   - ○ Accounting
   - ◉ Budgeting
   - ○ Allocating

3. True or False? Allocating monetary values to all the assets and resources used in order to deliver and manage a service communicates an IT cost of a service to the business.
   - ☑ True
   - ☐ False

ACTIVITY 2-3: Discussing the Service Portfolio Management Process

1. What is the key purpose of the SPM process?
   - ○ To provide an overview of available services.
   - ○ To determine cost of services.
   - ○ To identify how much a service is consumed in normal business activity.
   - ◉ To make enterprise-level investment decisions.

2. What are some of the high-level questions that the SPM process helps to answer?

   A: The SPM helps you to answer the questions: Why should a customer buy these services? Why should a customer buy these services from us? What are the charging models? What are our strengths, weaknesses, priorities, and risks? How should our resources and capabilities be allocated?

3. Rudison Technologies is deciding whether to retain, replace, or retire certain services. What SPM process phase are they employing?
   - ○ Define
   - ○ Analyze
   - ◉ Approve
   - ○ Charter

ACTIVITY 2-4: Discussing the Demand Management Process

1. **Which of the following is not considered a challenge of demand management?**
   - ○ A service cannot be produced ahead of time and stored for later.
   - ◉ There is no process that lets you predict future levels of demand.
   - ○ Demand is not always constant over time.
   - ○ Over-provisioning a service results in wasted resources.

2. **What is the overall goal of demand management?**
   - ○ To determine which services in the service catalog will be in the highest demand over a period of time.
   - ○ To determine which services in the pipeline are worth future investment.
   - ○ To determine whether or not the provisional costs of the service outweigh its service value potential.
   - ◉ To determine a balance between the offering of a service and the demand for that service.

3. **What is a Pattern of Business Activity? Why is it important to monitor?**

   A: A PBA is the term used to describe the patterns in customer business activity. It provides an indication of the level of demand for a particular service.

ACTIVITY 2-5: Discussing the Business Relationship Management Process

1. **Which one of the following is a primary purpose of business relationship management?**
   - ◉ Understanding the customer's needs and making sure they are met.
   - ○ Supporting the service from an operational perspective.
   - ○ Meeting performance targets as defined in service level agreements.
   - ○ Maximizing the financial value of services.

2. **Without dialog and constant communication between the business representatives and IT, two risks increase. What are those two risks?**
   - ○ The risk of misalignment and the risk of creating waste.
   - ◉ The risk of misalignment and the risk of not delivering value.
   - ○ The risk of misinformed stakeholders and the risk of failing to create value.

3. True or False? A major goal of Business Relationship Management is to build rapport between the business and IT.

☑ True

☐ False

Mastery Builder 2-1: Reviewing ITIL Basics and Service Strategy

1. Service optimization Service transition Service delivery Service strategy

Select the correct answer.

○ All of the above

○ 1 and 4 only

○ 2 and 3 only

◉ 2 and 4 only

2. What roles are defined in the RACI model?

○ Recommender, Approver, Connector, Informer

○ Responsible, Aligned, Consulted, Implemented

◉ Responsible, Accountable, Consulted, Informed

○ Responsible, Achiever, Corrector, Implementer

3. Measurability Delivery of a specific result Conformance with regulatory standards

Select the correct answer.

○ All of the above

○ 1 and 3 only

◉ 1 and 2 only

○ 2 and 3 only

4. Which statement about value creation through services is CORRECT?

◉ How the customer perceives the service is an important factor in value creation.

○ Financial measures ultimately determine service value.

○ The service provider's perception of the service is an important component in determining service value.

○ Market forces ultimately determine service value.

5. Which one of the following statements about internal and external customers is MOST correct?

○ External customers' needs should be prioritized higher for financial reasons.

○ Internal customers' needs should be prioritized higher to ensure continued functioning of the business.

○ Internal and external customers' needs should be prioritized on a first-in/first-out basis.

◉ Internal and external customers should receive the service levels that have been negotiated and agreed upon.

6. **What aspect of IT services is it most important for a provider to deliver to customers?**
   - ○ Capabilities
   - ◉ Value
   - ○ Cost reduction
   - ○ Risk mitigation

7. **What is the best description of "Warranty of a service"?**
   - ○ The service is fit for purpose.
   - ○ The service is fit for use.
   - ○ The service will have no problems within a specified period of time after release.
   - ◉ Customers are assured of certain levels of availability, capacity, continuity, and security.

8. **Which stage of the service lifecycle decides what services should be offered and to whom they should be offered?**
   - ○ Service operation
   - ○ Service design
   - ◉ Service strategy
   - ○ Service transition

9. **Which stakeholder group is MOST appropriate to define the value of a service?**
   - ○ Regulatory agencies
   - ◉ Customers
   - ○ IT management and staff
   - ○ Shareholders

10. **What is the basic purpose of a RACI chart?**
    - ○ To document customer requirements for a new service or process
    - ○ To perform “what-if” analysis
    - ◉ To document the roles and responsibilities of stakeholders in a process or activity
    - ○ To document agreed-upon service levels for internal and external customers

11. **Which stage of the service lifecycle provides a framework for evaluating service capabilities and risk profiles before new or changed services are deployed?**
    - ○ Service strategy
    - ○ Service design
    - ◉ Service transition
    - ○ Continual service improvement

12. Monitoring the performance of a specific service. Updating the configuration management system (CMS) after a change. Helping to identify service improvements. Representing a specific service in change advisory board (CAB) meetings.

Select the correct answer.

- ☐ All of the above
- ☐ 1, 2, and 3 only
- ☑ 1, 3, and 4 only
- ☐ 2, 3, and 4 only

13. It is a standard. It is vendor-neutral. It is non-prescriptive. It is a best practice.

Select the correct answer.

- ☐ All of the above
- ☐ 2 and 3 only
- ☐ 1, 2, and 3 only
- ☑ 2, 3, and 4 only

14. As a service provider, what should be your default response to a customer's request for a new service?

- ○ Fulfill it if it is an external customer who will pay for the service.
- ◉ Perform due diligence to determine if the request will be fulfilled.
- ○ Fulfill it based on organizational priorities if it is an internal customer.
- ○ Ensure that any request is fulfilled.

15. Users Customers Suppliers Functions

Select the correct answer.

- ◉ All of the above
- ○ None of the above
- ○ 1 and 2 only
- ○ 1, 2, and 4 only

16. Which one of the following statements is CORRECT for any of the ITIL processes?

- ○ It defines functions as part of its design.
- ○ It is implemented by an external service provider in support of a customer.
- ○ It is an organizational grouping responsible for well-defined outcomes.
- ◉ It delivers results to a customer or stakeholder.

17. They may include tools. They use resources to carry out one or more activities. Each person or group performs a single function. They cost more to implement than processes do.

Select the correct answer.

- ☐ All of the above
- ☑ 1 and 2 only
- ☐ 2 and 4 only
- ☐ 1, 2, and 3 only

18. Which statement regarding the relationship between service assets, resources, and capabilities is true?

- ○ Resources include service assets and capabilities.
- ◉ Service assets include resources and capabilities.
- ○ Capabilities include service assets and resources.

19. Which process of Service Strategy involves the analysis of Patterns of Business Activities (PBAs)?

- ○ Financial Management
- ○ Service Portfolio Management
- ○ Capacity Management
- ◉ Demand Management

20. What process is hallmarked by the steps Define, Analyze, Approve, and Charter?

- ◉ Service Portfolio Management (SPM)
- ○ Patterns of Business Activity (PBA)
- ○ Business Impact Analysis (BIA)
- ○ Service asset and configuration management (SACM)

21. What is the result of underestimating the level of demand for a service? Of overestimating the demand for a service?

A: When demand is higher than anticipated, service levels may fall below the agreed-upon level in the Service Level Agreement (SLA) and opportunities may be missed to gain revenue. When a service is over-provisioned, money is being spent that results in no revenue. Resources are being used that could be better used elsewhere.

22. Which process of Service Strategy involves using a Business Impact Analysis (BIA) to determine the impact of a service outage?

- ○ Service Portfolio Management
- ○ Demand Management
- ◉ Financial Management
- ○ Business Continuity Management

23. Which one of the following questions might be addressed during Service Portfolio Management?

- ○ What is an acceptable budget for this new service?
- ◉ Why should a customer be interested in this service?
- ○ How much demand will there be for this service next month?
- ○ What funding model should be used?

ACTIVITY 3-1: Discussing Basic Concepts of Service Design

1. **What are the four Ps of Service Design?**
   - ○ People, products, price, partners
   - ○ People, price, processes, place
   - ○ Placement, price, products, promotion
   - ◉ People, processes, products, partners

2. **Two large organizations make an agreement to form a strategic partnership to forge new market opportunities. What type of delivery model does this resemble?**
   - ○ Business process outsourcing
   - ◉ Multi-sourcing
   - ○ Knowledge process outsourcing
   - ○ Co-sourcing

3. **What is the relationship among resources, schedules, and functionality? What happens when a change is made to one of the three?**

   A: As any one of these three elements change, it is usually the case that an adjustment is necessary for at least one of the remaining two. Additional functionality will either require more resources over the same schedule, or the same resources over a longer schedule.

ACTIVITY 3-2: Discussing the Design Coordination Process

1. **What is the purpose of the Design Coordination process?**

   A: The purpose of the Design Coordination process is to oversee the many and varied processes and their activities involved in Service Design, and to provide a single point of control to minimize or avoid conflict among the processes.

2. Measurement methods and metrics Management information systems and tools Technology and management architectures The processes required

   Select the correct answer.
   - ◉ All of the above
   - ○ 1 and 2 only
   - ○ 2 and 3 only
   - ○ 2, 3, and 4 only

3. **Which one of the following statements is an objective of the design coordination process?**
   - ○ To ensure that agreed-upon service levels are met.
   - ○ To maintain an organization's service catalog.
   - ○ To ensure that all IT components are appropriate for meeting the service level targets.
   - ◉ To monitor and improve the performance of service design in the service lifecycle.

ACTIVITY 3-3: Discussing the Service Level Management Process

1. **Which of the following is not a type of Service Level Agreement?**
   - ○ Customer-based SLA
   - ○ Service-based SLA
   - ◉ Supplier-based SLA
   - ○ Multi-level SLA

2. **Which of the following is an internal agreement between the support teams of an IT service provider?**
   - ○ Department Support Agreement
   - ○ Service Level Agreement
   - ○ IT Support Agreement
   - ◉ Operational Level Agreement

3. **Which of the following is the best example of a supplier performing a service?**
   - ○ The IT Service Desk repairs a failed network card for a user.
   - ◉ An ISP provides Internet access for a company to offer e-commerce.
   - ○ An internal service technician upgrades the antivirus software on everyone's machines.
   - ○ The IT Service Desk locates and removes a virus from a user's machine.

4. **What is a SLAM chart, and what does it indicate?**

   A: A SLAM chart is typically a color-coded matrix that is used to compare the service levels that are defined in the SLA with the actual service levels being provided. It helps identify service aspects that are being met, missed, or nearly missed over a specific time interval.

5. **What is the purpose of a service review?**
   - ○ To determine which services in the catalog should be retired.
   - ○ To determine the future demand for the particular service.
   - ◉ To assess the level of service being provided to a customer.
   - ○ To determine the value of a service in business terms.

ACTIVITY 3-4: Discussing the SCM Process

1. **What is included within the service catalog?**
   - ○ The entire set of services offered, services in development, and retired services.
   - ◉ All active and approved services that a provider currently offers to its client base.
   - ○ All active services and those in development, but not retired services.
   - ○ All services that are in consideration or in development.

2. **What is the primary function of SCM?**
   - ○ To identify the suppliers best positioned to offer services to the organization.
   - ○ To determine which retired services may be worth reinstating.
   - ○ To make services as accessible to clients as possible.
   - ◉ To maintain all information about services currently offered in one centralized location.

3. **What are some of the key activities that ensure the success of the SCM process?**

   A: Such activities may include defining the services that are offered, maintaining the catalog and keeping it available to anyone it affects, keeping stakeholders in the loop about any new information about the service catalog, managing inter-dependencies between services within the catalog, and monitoring the CMS.

4. **What is the difference between the business service catalog and the technical service catalog?**

   A: The business service catalog contains the details of all IT services that are delivered to a customer, and the business processes that depend on the service. It is client-facing. The technical service catalog describes the technical details of each service provided for customers and includes the relation of these services to shared services, components, and configuration items. It is internal, and not client-facing.

ACTIVITY 3-5: Discussing the Availability Management Process

1. **The Availability Management process considers three primary facets: reliability, maintainability, and serviceability. Reliability of a service is defined by how long the service can fulfill its purpose without interruption. Which of the following best describes maintainability?**
   - ◉ How quickly the service can be restored after a failure.
   - ○ How quickly a third party can restore a service per contracts.
   - ○ How quickly a service can achieve high availability.
   - ○ How long a service can stay online.

2. **What are some of the methods that can be used to measure availability?**

   A: Availability can be measured by examining statistics such as uptime, device utilization, and the number of failures over a given time period. The level of actual service availability should be compared to the pre-defined requirements in the SLA.

3. **True or False? A service can still be available when components of that service are unavailable.**
   - ☑ True
   - ☐ False

4. **What is meant by the term "high availability"?**
   - ◉ The IT architecture eliminates single points of failure through fault tolerance and resilience.
   - ○ The service is available 100% of the time.
   - ○ All data is backed up and stored offsite so that it is always available even during an outage.
   - ○ A supplier can restore the system to normal functionality quickly when it is disrupted.

ACTIVITY 3-6: Discussing the Capacity Management Process

1. In ITIL, what does the term capacity refer to?

   ○ The total number of customers that may need to access a specific service.

   ○ The maximum number of clients who can use a service at a given time.

   ◉ The maximum throughput that a service can deliver while meeting agreed-upon service levels.

   ○ The total number of resources available that a company could allocate toward a service.

2. What are some of the proactive and reactive activities conducted in Capacity Management?

   A: Proactive activities include assessing current needs and utilization trends, predicting future needs and usage trends, budgeting for any required upgrades, and improving performance before there are issues. Reactive measures include monitoring and measuring usage and response times, responding to interruptions caused by inadequate capacity, and system tuning.

3. What type of information is most likely found within a CMIS?

   ○ Capacity plan, availability statistics, and SLRs

   ○ Suppliers, contracts, and SLAs

   ○ Business units, customers, and employees

   ◉ Capacity and performance data, forecasts, and capacity plans

ACTIVITY 3-7: Discussing the Information Security Management Process

1. What are some of the potential consequences of poor information security measures?

   A: Threats to information security can be internal or external. When the incorrect internal users are allowed access to information they should not be allowed to view, sensitive personal or company information could be made public. If external customer data is breached, severe legal penalties could result. This can also be harmful to the reputation of your organization.

2. What are some of the components that a good information security policy should cover?

   A: The security policy will vary between organizations, but typically includes guidelines for the use and misuse of IT services, access control, password control, email and Internet usage, antivirus settings, remote access, supplier access, and asset disposal.

3. **What metric best shows an IT group's efficiency in resolving security incidents?**
   - ○ A log of all security incidents.
   - ◉ The average time to correct a security breach.
   - ○ User compliance statistics.
   - ○ The average cost of security countermeasures.

ACTIVITY 3-8: Discussing the IT Service Continuity Management Process

1. **What is IT Service Continuity Management primarily concerned with?**
   - ○ Preventing service interruptions from occurring.
   - ○ Ensuring that resources are being used on the service most critical to the business.
   - ◉ Ensuring that catastrophic service interruptions are resolved within acceptable time frames.
   - ○ Ensuring that suppliers are meeting contract terms in order for the organization to meet its obligations.

2. **What is used to determine the impact of a service interruption?**
   - ○ Service Level Agreement
   - ◉ Business Impact Analysis
   - ○ Service Continuity Analysis
   - ○ Business Requirement Analysis

3. **What is the primary difference between Availability Management and IT Service Continuity Management?**

   A: Availability Management includes the day-to-day activities that allow a service or a system to perform its function when it is needed. IT Service Continuity Management includes activities to restore a service as quickly as possible when a disastrous interruption occurs.

ACTIVITY 3-9: Discussing the Supplier Management Process

1. **What is the main purpose of supplier management?**
   - ○ To ensure that an IT service meets expected performance levels within budgeted costs.
   - ○ To ensure that the IT service infrastructure supports agreed-upon service levels.
   - ○ To negotiate and agree upon service levels.
   - ◉ To ensure third-party services enable an IT service provider to meet customer obligations.

2. **Where is data pertaining to all suppliers and their contracts stored?**
   - ○ CMS
   - ◉ SCMIS
   - ○ AMIS
   - ○ SKMS
   - ○ CMIS

3. **The CTO of an IT service provider meets quarterly with the CFO of a third-party supplier. What category does this supplier likely fall into?**
   - ◉ Strategic
   - ○ Tactical
   - ○ Operational
   - ○ Commodity

4. **Think of some problems that could result from poor Supplier Management. What actions can an organization take to make sure that the best possible suppliers are being contracted?**

   A: Poor Supplier Management may result in contractual commitments to suppliers who are not as cost-effective as other potential suppliers. Other suppliers may be able to provide services that are cheaper or more reliable. Regular evaluations of supplier performance give the organization an opportunity to identify any service or process-related issues with suppliers and develop a Service Improvement Plan (SIP), if necessary. If this does not prove to be effective, the contract may not be renewed.

Mastery Builder 3-1: Reviewing Service Design

1. **Samuel establishes a formal agreement with a client to set up the service's hours of operation, transaction response times, and throughput expectations. What process of Service Design is this activity a part of?**
   - ○ Supplier Management
   - ◉ Service Level Management
   - ○ Availability Management
   - ○ Capacity Management

2. **True or False? The ability of an organization to restore service operations after a catastrophic failure is the goal of availability management.**
   - ☐ True
   - ☑ False

3. What is the difference between an SLA and an OLA?

A: A Service Level Agreement, or SLA, is a formal agreement between a service provider and a customer that outlines all aspects of the service, as well as expectations of both the service provider and the customer. An Operational Level Agreement, or OLA, is an internal agreement between functions within the IT service provider that establishes the level of support required for the IT service provider to satisfy the SLA targets.

4. Which statement best describes the reliability of a service?

○ It takes roughly 45 minutes to restore functionality to the server once it goes down.

◉ It has been 12 days since the server was last unavailable.

○ It takes an Internet service provider (ISP) about two hours to resolve an outage to a business that provides web hosting, but the agreed-upon response time is one hour.

○ There are 150 clients that rely on a service to be available during normal business hours.

5. What is the difference between Business Capacity Management, Service Capacity Management, and Component Capacity Management?

A: Business Capacity Management helps you understand current and future customer business requirements, unrelated to anything IT-specific. Service Capacity Management identifies the performance of the IT service in terms of service levels. Component Capacity Management ensures that each individual IT component is sufficient to offer the level of service identified during Service Capacity Management.

6. What are some of the technical and non-technical aspects of Information Security Management that require attention?

A: Answers will vary, but should include technical aspects such as authorization controls for servers and databases containing sensitive information or access to restricted regions of a building. Non-technical aspects may include security processes, usage policies, and confidentiality agreements.

7. Which process of Service Design makes use of a Capacity Management Information System (CMIS)?

○ Service Catalog Management

○ Change Management

◉ Capacity Management

○ Information Security Management

8. Which of the following is the BEST description of an operational level agreement (OLA)?

◉ An agreement between an IT service provider and another part of the same organization that assists in the provision of services.

○ An agreement between an IT service provider and an external customer defining key targets and responsibilities of both parties.

○ An agreement between an IT service provider and a third-party supplier about the levels of service required by the customer.

○ An agreement between a third-party supplier and an internal customer about required response times when an incident is reported.

9. **What is the MAIN purpose of availability management?**
   - ○ To monitor and report on availability of components.
   - ○ To negotiate performance targets in service level agreements (SLAs).
   - ○ To report financial performance to stakeholders.
   - ◉ To ensure that service availability meets the agreed-upon needs of the business.

10. **Which is NOT one of the three sub-processes of capacity management?**
   - ○ Business capacity management
   - ○ Service capacity management
   - ◉ Supplier capacity management
   - ○ Component capacity management

11. **Which process is responsible for reviewing operational level agreements (OLAs) on a regular basis?**
   - ○ IT service continuity management
   - ◉ Service level management
   - ○ Design coordination
   - ○ Service catalog management

12. **Who should be granted access to the information security policy?**
   - ○ Information security management only
   - ○ Senior business managers and IT staff
   - ○ Customers and all IT managers and staff
   - ◉ All customers and users and all IT staff

13. Agreed and documented business requirements A plan for transition of the service IT staff calendars Metrics to measure the service

   Select the correct answer.
   - ○ All of the above
   - ○ 1 only
   - ○ 2 and 3 only
   - ◉ 1, 2, and 4 only

14. **Which one of the following activities is NOT part of the service level management (SLM) process?**
   - ○ Designing the SLA framework.
   - ◉ Designing the configuration management system from a business perspective.
   - ○ Monitoring service performance against service level agreements (SLAs).
   - ○ Reviewing contracts and operational level agreements (OLAs).

15. Which one of the following should a service catalog contain?

- ○ SLA documentation
- ○ The organizational structure of the company
- ◉ Details of all operational services
- ○ Inventories of technical assets

16. IT service continuity management Information security management Availability management

Select the correct answer.

- ◉ All of the above
- ○ 1 and 2 only
- ○ 1 and 3 only
- ○ 2 and 3 only

17. Which one of the following is the CORRECT list of the four Ps of service design?

- ○ People, problems, partners, processes
- ○ Products, people, planning, partners
- ○ Problems, processes, planning, perspective
- ◉ People, partners, products, processes

18. Service Level Management could consider input from which processes when negotiating service level agreements (SLAs)?

- ◉ Any of the other ITIL processes
- ○ Capacity Management and Availability Management only
- ○ Supplier Management and Business Relationship Management only
- ○ Demand Management and Release and Service Portfolio Management only

19. Which process would assist with the identification and resolution of any incidents and problems associated with service or component performance?

- ◉ Capacity Management
- ○ Supplier Management
- ○ Information Security Management
- ○ Service Catalog Management

20. Which two processes will be involved the MOST in negotiating and agreeing on contracts for the provision of recovery capability to support continuity plans?

- ○ Service Level Management and Capacity Management
- ○ Supplier Management and Service Level Management
- ○ IT Service Continuity Management and Service Level Management
- ◉ IT Service Continuity Management and Supplier Management

21. Which of the following is NOT a type of service level agreement (SLA) described in the ITIL service design publication?

- ○ Service-based SLA
- ◉ Technology-based SLA
- ○ Multi-level SLA
- ○ Customer-based SLA

22. Which one of the following is NOT a purpose or objective of Availability Management?

- ○ To monitor and report on the availability of components
- ○ To ensure that service availability matches the agreed-upon needs of the business
- ○ To assess the impact of changes on the availability plan
- ◉ To ensure that business continuity plans are aligned to business objectives

23. Which one of the following is a CORRECT description of the "Four Ps" of service design?

- ○ The four steps in the process of designing effective service management.
- ○ The four categories of stakeholders who influence service design.
- ○ The four questions you should ask when reviewing design specifications.
- ◉ The four major areas you need to consider during service design.

24. Negotiating operational level agreements (OLAs) Ensuring that suppliers meet business expectations Maintaining information in a supplier and contractor management information system Negotiating external agreements to support the delivery of services

Select the correct answer.

- ○ All of the above
- ○ 1, 2, and 3 only
- ○ 1, 3, and 4 only
- ◉ 2, 3, and 4 only

ACTIVITY 4-1: Discussing Basic Concepts of Service Transition

1. Which of the following is an objective of Service Transition?

- ○ To develop strategies on what the business needs and what it does not.
- ○ To develop a strategy for restoring normal service operation as quickly as possible following a disruption.
- ○ To continually realign IT services to changing business needs.
- ◉ To plan and manage the resources to establish a new or changed service into production within constraints.

2. **Which of the following processes of Service Transition manages the building, testing, and delivery of new or changed service components?**
   - ○ Change management
   - ○ SACM
   - ◉ Release and deployment management
   - ○ Knowledge management

3. A repository of definitive versions of software. A workflow tool for managing changes. A method for automatically distributing software updates. Validation and testing tools.

   Select the correct answer.
   - ◉ All of the above
   - ○ 1, 3, and 4 only
   - ○ 1, 2, and 3 only
   - ○ 2, 3, and 4 only

ACTIVITY 4-2: Discussing the Transition Planning and Support Process

1. **Which process is responsible for maintaining the overarching plan and coordinating the resources necessary for the transition?**
   - ○ Change management
   - ◉ Transition planning and support
   - ○ Knowledge management
   - ○ Release and deployment management

2. **What is the purpose of transition planning and support?**

   A: The purpose of transition planning and support is to provide an integrated planning approach to ensure Service Transition plans are aligned with customer, supplier, and business changes.

3. **A deployment manager sends an email to the user base to let them know a rollout will be delayed. Which Transition Planning and Support process objective does this represent?**
   - ○ Coordinate resources.
   - ○ Manage cost, time, and quality constraints.
   - ○ Modify systems and tools.
   - ◉ Inform stakeholders of risks and deviations.

ACTIVITY 4-3: Discussing the Change Management Process

1. **Which of the following is the best example of a standard change?**

   ○ A user reports a couple of bugs to be addressed in the next release of a proprietary program.

   ○ An email server goes down and needs repair.

   ○ A user requests that the company switch to a more reliable supplier.

   ◉ A user requests to have a software package installed on his PC.

2. **True or False? The IT Service Desk releases an updated version of a proprietary application after multiple users have logged defects about an applet it uses. This is an example of a proactive change.**

   ☐ True

   ☑ False

3. **What are some of the metrics that can be used to gauge the effectiveness of the change management process?**

   A: Such measures might include the number of changes made relative to the number of feasible changes requested, the number of successful changes compared to unsuccessful changes, the number of disruptions or incidents following the implementation of the change, and the number of support requests issued after the change is made.

ACTIVITY 4-4: Discussing the SACM Process

1. **Which of the following is not true of a DML?**

   ○ It contains authorized versions of all types of CIs such as software, documentation, and multimedia content.

   ◉ It is freely accessible to all members of the organization.

   ○ Everything within it has passed QA checks and is approved.

   ○ Only software that is within it is acceptable for a release.

2. **True or False? A snapshot is a configuration of a service or infrastructure that has been formally agreed upon, and serves as the basis for future activities.**

   ☐ True

   ☑ False

3. **Which layer of the CMS allows users to query the system?**

   ◉ Presentation Layer

   ○ Knowledge Processing Layer

   ○ Information Integration Layer

   ○ Data Layer

4. **What is the primary goal of SACM?**
   - ○ Track expenditures on IT assets.
   - ○ Monitor service outages.
   - ◉ Control the IT infrastructure.
   - ○ Document change requests.

ACTIVITY 4-5: Discussing the Release and Deployment Management Process

1. **A new release of an in-house application results in changing the version number from 3.5.1 to 4.0.0. What does this likely imply?**
   - ○ This is the fourth time that a release has been issued for the application.
   - ○ This is an emergency change, as denoted by the upgrade to a whole version number.
   - ◉ This is a major release of the application with significant changes.
   - ○ This new release will be pushed to all users through a big bang approach.

2. **The IT service provider is unsure whether a new release should be deployed using the big bang or a phased approach. Which aspect of the release and deployment process does this concern?**
   - ○ Release policy
   - ◉ Release design
   - ○ Release package
   - ○ Release strategy

3. **What is the definition and purpose of early life support?**

   A: Early life support, or ELS, refers to the support provided for a new or changed IT service for a period of time after it is released. Its purpose is to provision an extra amount of resources immediately following a new release in order to support users during the transition.

ACTIVITY 4-6: Discussing the Knowledge Management Process

1. **True or False? The goal of knowledge management is to ensure that knowledge is dispersed across an organization and made available only to those departments that use it.**
   - ☐ True
   - ☑ False

2. **Which statement regarding the hierarchy of knowledge management is accurate?**

   ○ The SKMS is the foundation of the CMS.

   ○ Several CMSs feed into CMDBs, which create the SKMS.

   ○ The SKMS is built upon a collection of CMSs.

   ◉ Several CMDBs are organized to create the CMS, which is the foundation of the SKMS.

3. **How might an organization measure the effectiveness of its knowledge management?**

   A: A few tangible metrics of knowledge management might include the decrease in the number of support requests after gathering and storing a specific set of knowledge, a reduction in the cost of training, and a reduction in the average time required to diagnose and correct a problem.

Mastery Builder 4-1: Reviewing Service Transition

1. **Describe the four levels of the DIKW Model and how it serves as the basis for sound decision making.**

   A: Data is a collection of raw events, statistics, or other facts that are gathered and stored. Information is the organization of data in a specific way, with context added to it. Knowledge is the combination of information with experiences, ideas, and insight. Wisdom is the highest level of the structure, and is the application of knowledge to make sound decisions. Wisdom is the result of combining the knowledge of everyone in an organization to make decisions based on good judgment.

2. **An extra level of support is provided to assist users who are just getting accustomed to a new version of an in-house application. What process is this a part of?**

   ○ Change management

   ○ Service asset and configuration management (SACM)

   ◉ Release and deployment management

   ○ Knowledge management

3. **What process of Service Transition involves maintaining the DML?**

   ○ Change management

   ◉ Service asset and configuration management (SACM)

   ○ Release and deployment management

   ○ Knowledge management

4. **What is the difference between release policy and release design? What would be an example of each?**

   A: Release policy is a set of governing rules about the release process that defines the criteria at each phase and the frequency and naming conventions to be used. For example, the versioning of releases is defined, such as the increment of 1.0.0 for a major release. Release design involves how a release should be distributed to the user base. An example would be whether to use the big bang approach and deploy the release to all users at once or use a phased approach to deploy it in segments.

5. **What does the Configuration Management System (CMS) serve as the foundation of?**
   - ○ Change Advisory Board (CAB)
   - ○ Definitive Media Library (DML)
   - ○ Configuration Management Database (CMDB)
   - ◉ Service Knowledge Management System (SKMS)

6. **What is the purpose of conducting a Post Implementation Review (PIR)?**

   A: There are many reasons to conduct a PIR. The first is to ensure that the change has met its objectives. It also helps you to verify that no unexpected side effects have been introduced by the change. You also have the opportunity to document any lessons learned during the implementation to use when making future changes.

7. Changes to a mainframe computer Changes to business strategy Changes to a service level agreement (SLA) The retirement of a service

   Select the correct answer.
   - ○ All of the above
   - ◉ 1, 3, and 4 only
   - ○ 1 and 4 only
   - ○ 2, 3, and 4 only

8. **Which process is responsible for recording relationships between service components?**
   - ◉ Service asset and configuration management (SACM)
   - ○ Transition planning and support
   - ○ Knowledge management
   - ○ Release and deployment management

9. Introducing new services Creating a business case Transfer of services between service providers

   Select the correct answer.
   - ○ All of the above
   - ○ 1 and 2 only
   - ○ 2 only
   - ◉ 1 and 3 only

10. **Which one of the following statements about a configuration management system (CMS) is CORRECT?**
    - ○ The CMS should not contain corporate data about customers and users.
    - ◉ There is only one CMS.
    - ○ There should not be more than one configuration management database (CMDB).
    - ○ It is not needed if an organization outsources its IT services.

11. Copies of purchased software Copies of internally developed software SLAM and RACI charts The change schedule

Select the correct answer.

- ○ All of the above
- ◉ 1 and 2 only
- ○ 3 and 4 only
- ○ 1, 2, and 3 only

12. Ensuring release packages can be tracked. Authoring changes to support the process. Defining and agreeing release and deployment plans.

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ○ 2 and 3 only
- ◉ 1 and 3 only

13. **Which statement about the relationship between the configuration management system (CMS) and the service knowledge management system (SKMS) is CORRECT?**

- ○ The SKMS is one component of the CMS.
- ◉ The CMS is part of the SKMS.
- ○ The SKMS is an older term for the CMS.
- ○ The CMS contains higher-level information than the SKMS.

14. **What is the role of the emergency change advisory board (ECAB)?**

- ◉ To assist the change manager in evaluating emergency changes and determining whether to authorize them.
- ○ To assist the change manager by implementing emergency changes.
- ○ To assume decision-making responsibility for emergency changes from the change manager.
- ○ To assist the change manager by making sure emergency changes are implemented as quickly as possible.

15. **Which one of the following statements about a standard change is INCORRECT?**

- ○ It is pre-authorized by change management.
- ○ It is relatively common.
- ○ It is low risk.
- ◉ It requires a Request for Change (RFC).

16. **Which one of the following maintains relationships between all service components?**

- ○ The configuration baselines
- ○ The definitive media library
- ◉ The configuration management system
- ○ The service catalog

17. Configuration items (CIs) are identified. CIs are baselined. CIs are purchased or acquired internally.

Select the correct answer.

- ○ All of the above
- ◉ 1 and 2 only
- ○ 1 and 3 only
- ○ 2 and 3 only

18. **Which process is primarily responsible for packaging, building, testing, and deployment services?**

- ○ Transition planning and support
- ○ Service asset and configuration management
- ◉ Release and deployment management
- ○ Knowledge management

19. A change model should be used for both standard and emergency changes. A change model should be constructed when a significant change is required. A change model defines the steps that should be taken to handle a particular type of change. Escalation procedures are outside the scope of a change model.

Select the correct answer.

- ○ All of the above
- ○ 1 and 2 only
- ◉ 1 and 3 only
- ○ 1, 2, and 4 only

ACTIVITY 5-1: Discussing Basic Concepts of Service Operation

1. **Which statements about Service Operation are true?**

- ☑ It is where customers see value.
- ☑ It delivers services at the agreed-upon level.
- ☐ It aims to continually realign the service with customer expectations.
- ☐ It ensures successful deployment of services.

2. **True or False? Workarounds are temporary fixes.**

- ☑ True
- ☐ False

3. **Which of the following is the best example of a known error database?**

○ A collection of documentation about the support database that is stored on the company intranet and is searchable.

○ A document that a client created and uses to work around all the bugs in the software.

◉ A wiki that the entire support department has access to, where they can access, modify, and share knowledge to troubleshoot errors.

	**Note:** To learn more, check out the LearnTO **Identify Ways to Use Service Operation in Your Organization** presentation from the **LearnTO** tile on the CHOICE Course screen.

ACTIVITY 5-2: Discussing Event Management

1. **In which Event Management activity would you decide to pass an event along to a management tool?**

◉ Event filtering

○ Event detection

○ Event classification

○ Event correlation

2. **Which of the following best describes polling?**

◉ A method of communicating events by probing for specific data.

○ A method of collecting data in the event notification activity that generates a report when specific criteria are met.

○ A method of communicating that a failure has occurred.

○ A method of notifying management that there is a problem with a CI.

3. **A website fails to load when the customer enters the URL in her browser. What does this event indicate?**

A: Abnormal operation.

ACTIVITY 5-3: Discussing the Incident Management Process

1. **Which of the following is the best example of an incident?**

○ A DNS Server has had its IP address changed.

○ A user logs on to her workstation.

◉ A customer attempts to place an order through your company website, and the transaction gets caught in a loop and never completes.

○ A network drive has reached 65% capacity, which is within the boundaries of the SLA.

2. **True or False? The Incident Management process restores service to the level defined in SLAs.**
   - ☑ True
   - ☐ False

3. **Which activity follows incident registration in the Incident Management process?**
   - ◉ Categorization
   - ○ Initial diagnosis
   - ○ Investigation
   - ○ Identification

4. **Explain the distinction between an event and an incident.**

   A: Events can be any change of state. Incidents involve unplanned service interruptions or quality reductions.

ACTIVITY 5-4: Discussing Problem Management

1. **Which of the following is the best example of a problem?**
   - ○ A customer is unable to log in to her account, even after entering her user name and password correctly.
   - ◉ No one can access a database, and it's discovered that the database server is offline due to a failed drive.
   - ○ An unauthorized attempt to access the wireless network was blocked.

2. **Which activity immediately follows categorization in the Problem Management process?**
   - ○ Detect and log
   - ○ Raise known error
   - ○ Workarounds
   - ◉ Investigate and diagnose

3. **Which of the following are important concepts in Problem Management?**
   - ☑ Root cause
   - ☑ Known error
   - ☑ Workaround
   - ☑ Closure
   - ☐ Trigger

4. **True or False? A severe incident can become a problem.**
   - ☐ True
   - ☑ False

ACTIVITY 5-5: Discussing the Request Fulfillment Process

1. **Which of the following occur in the financial authorization activity of the Request Fulfillment process?**
   - ☑ Fix a price prior to handling the request.
   - ☐ Verify that the user's budget allows for the request to be made.
   - ☑ Estimate a cost after a user makes a request.
   - ☐ Determine that the request falls within your fulfillment budget.

2. **True or False? A service request still falls in the Request Fulfillment process even if it just requests advice.**
   - ☑ True
   - ☐ False

3. **Why might it be important to have a separate Request Fulfillment process, rather than manage service requests in a shared process, such as Access Management?**

   A: It is important because Request Fulfillment concerns requests that occur regularly, and these requests carry little risk to the organization. These requests might skew the data in another process, and therefore it's easier to manage simple service requests by creating and maintaining a separate process for them.

ACTIVITY 5-6: Discussing the Access Management Process

1. **Which activity follows the monitoring identity status activity in the Access Management process?**
   - ○ Verification
   - ○ Registering and monitoring access
   - ◉ Logging and tracking access
   - ○ Granting rights

2. **What are the advantages to using a non-personal name as an employee or user identity?**

   A: Should two or more employees share the same name, there would be a conflict. If an employee marries, divorces, or otherwise changes their real name, this would also mean that access would need to be changed. It is easier to give access based on an identity that is separate from a name, something that is unique.

3. What are other terms for access management?
   - ☐ Availability management
   - ☑ Rights management
   - ☑ Identity management
   - ☐ Service group management

ACTIVITY 6-1: Discussing the Service Desk

1. Which items does a Service Desk typically deal with?
   - ☑ Incidents
   - ☑ Access requests
   - ☐ Business cases
   - ☑ Service requests

2. The Service Desk for Hexa Web Hosting is divided between dozens of individuals working out of their homes in two geographically distinct locations, so that the coverage spans 24 hours a day, 7 days a week. Which one or more of the following categories would this Service Desk fall into?
   - ☐ Local
   - ☑ Virtual
   - ☑ Follow-the-Sun
   - ☐ Centralized
   - ☐ Consolidated

3. True or False? Service Desks are responsible for closing resolved incidents and requests.
   - ☑ True
   - ☐ False

4. Which one or more of the following would be good metrics to use for evaluating the efficiency of a Service Desk?
   - ☑ Average cost of handling a call
   - ☑ Number of incidents resolved without escalation
   - ☐ Network downtime
   - ☐ Download speed of a security patch for a piece of internally developed software

ACTIVITY 6-2: Discussing Technical Management

1. **Which one or more of the following are Technical Management roles?**
   - ☐ Technical Writer
   - ☑ Technical Analyst
   - ☑ Technical Operator
   - ☐ Facilities Manager

2. **Which statement about Technical Management is correct?**
   - ○ It supports technological advancements through careful planning and testing.
   - ◉ It provides technical skills for both the general IT infrastructure and for IT service support.
   - ○ It provides advanced expertise to the Service Desk should there be an escalated service call.
   - ○ It supports IT infrastructure improvements after being approved by Service Design.

3. **What is the primary objective of Technical Management?**
   - ○ Advise Human Resources on technical staffing needs.
   - ◉ Ensure a stable IT infrastructure.
   - ○ Ensure appropriate execution of SLAs.
   - ○ Monitor day-to-day IT functions.

ACTIVITY 6-3: Discussing IT Operations Management

1. **Which statement about IT Operations Management is correct?**
   - ○ It provides technical expertise.
   - ○ It provides access when the Service Desk cannot.
   - ○ It supports difficult service requests.
   - ◉ It supports the physical IT infrastructure.

2. **Which of the following terms concerns the execution of standard and mostly automated reports, queries, or routines?**
   - ◉ Job scheduling
   - ○ Operations bridge
   - ○ Service Desk
   - ○ Task management

3. **Which role manages the physical environment of the IT infrastructure, including data centers, recovery sites, power supplies, air conditioning, and climate control in the server room?**
   - ○ IT Operations Leader
   - ○ IT Operations Manager
   - ◉ Facilities Manager
   - ○ Shift Leader

ACTIVITY 6-4: Discussing Application Management

1. **True or False? The scope of responsibility for Application Management is similar to the scope of responsibility for Technical Management for their respective areas.**
   - ☑ True
   - ☐ False

2. **Which statement about Application Management is correct?**
   - ○ Application Management handles only applications developed in-house.
   - ○ Application Management is the only Service Operation function that deals exclusively with internal customers.
   - ○ Application Management only handles the application's lifecycle stages once it can be tested.
   - ◉ Application Management, like Technical Management, is a decentralized function.

3. **Which of the following are objectives of the Application Management function?**
   - ☑ Diagnose and resolve application-related trouble.
   - ☐ Diagnose technical infrastructure issues.
   - ☑ Design effective, cost-saving applications.
   - ☑ Deploy appropriate technical expertise to maintain those applications.
   - ☐ Coordinate routine operational activities.

Mastery Builder 6-1: Reviewing Service Operation

1. **What is the difference between a problem and an incident?**

   A: Incidents are disruptions of a service. Problems are the root causes of those incidents.

2. **If a user is choosing a desired service from an automated menu, what process is she participating in?**
   - ○ Event Management
   - ◉ Request Fulfillment
   - ○ Incident Management
   - ○ Access Management

3. **Explain your choice from Question #2.**

   A: Answers may vary, but might include: Event Management is largely automated, but it supplies information that other people report; users do not desire events. Self-service is one of the features and goals of the Request Fulfillment process. Users do not desire incidents. Incidents are disruptions of a service, and so this does not qualify. Since the user is selecting a service and is not submitting a request for change (RFC), this is not Access Management.

4. **Robert is investigating the root cause of a Dynamic Host Configuration Protocol (DHCP) server crash. What process is he participating in?**

   - ○ Event Management
   - ○ Incident Management
   - ◉ Problem Management
   - ○ Access Management

5. **Arthur is investigating the cause of the entire staff's desktop passwords being reset after work on Friday. What process is he participating in?**

   - ○ Event Management
   - ○ Incident Management
   - ◉ Problem Management
   - ○ Access Management

6. **Sheila is reviewing a security log file that shows an employee entered the building and used his computer at midnight the night before. What process is she participating in?**

   - ◉ Event Management
   - ○ Incident Management
   - ○ Problem Management
   - ○ Access Management

7. **What is the importance of a known error database?**

   A: A consolidated collection of errors means that diagnosis of future problems can be made faster. Known errors also facilitate the faster resolution of incidents.

8. **Maureen works as a database support specialist. She has been notified that a user logged into a current database with a valid, though retired, user name. What has been brought to her attention?**

   - ◉ An event
   - ○ An incident
   - ○ A problem
   - ○ An alarm

9. How do IT Operations Management and Technical Management fit together?

A: Technical Management is the custodian of technical knowledge and expertise, and it provides guidance to IT Operations Management. The Operations Management team repeatedly performs the day-to-day IT operational activities and leverages the expertise, skill, and training of various technical experts from Technical Management as required.

10. How do the Service Operation functions create value for the customer?

A: The Service Desk provides a single point of contact for users to streamline communications between users and IT staff. Technical Management provides the necessary skills and technical expertise to manage the IT infrastructure effectively and efficiently. Application Management is to applications what Technical Management is to IT infrastructure. IT Operations Management directly delivers value to customers by performing the necessary day-to-day operational activities of an IT service provider.

11. What is the difference between a Service Desk and an operations bridge?

A: An operations bridge is a physical location where IT services and IT infrastructure are monitored and managed. A Service Desk is the single point of contact between the service provider and the users. A typical Service Desk manages incidents and service requests, and also handles communication with the users.

12. What is the difference between IT Operations Management and Technical Management?

A: Both are functions within Service Management, but IT Operations Management performs the daily activities needed to manage IT services and the supporting IT infrastructure. This includes IT Operations Control and Facilities Management. Technical Management, on the other hand, provides technical skills in support of IT services and management of the IT infrastructure. Technical Management defines the roles of support groups, as well as the tools, processes, and procedures required.

13. Which of the following is NOT a purpose of service operation?

- ◉ To design services to satisfy business objectives.
- ○ To deliver and manage IT services.
- ○ To manage the technology used to deliver services.
- ○ To monitor the performance of technology and processes.

14. It assigns prioritization codes to manage how problems are handled by staff. It documents known errors, workarounds, and resolutions

Select the correct answer.

- ○ 1 only
- ○ 2 only
- ◉ Both of the above
- ○ Neither of the above

15. What is the purpose of the request fulfillment process?

- ◉ Enabling users to request and receive standard services.
- ○ Making sure all requests internal to the organization are fulfilled.
- ○ Implementing emergency changes.
- ○ Making sure service level agreement (SLA) terms are met.

16. **Which one of the following BEST summarizes the purpose of event management?**

- ◉ To detect, manage, and monitor the lifecycle of events.
- ○ To restore normal service after an event is detected.
- ○ To provide supervision and structure for IT staff members.
- ○ To monitor service performance against service level agreements (SLAs).

17. **Which one of the following is a benefit of using an incident model?**

- ○ It assists in determining the root causes of incidents.
- ○ It enables negotiation of favorable terms in service level agreements (SLAs).
- ◉ It provides a standardized approach for processing particular types of incidents.
- ○ It reduces the average time needed to resolve most incidents.

18. **After identification and logging, which is the correct next activity in the sequence of activities for handling an incident?**

- ◉ categorization
- ○ prioritization
- ○ initial diagnosis
- ○ investigation

19. **Which one of the following represents the BEST course of action to take when a problem workaround is found?**

- ○ Close the problem record and document the workaround in a request for change (RFC).
- ◉ Document the workaround in the open problem record.
- ○ Leave the problem record open and document the workaround in any related incident records.
- ○ De-escalate and de-prioritize the open problem record.

20. **Which one of the following statements about the known error database (KEDB) is MOST correct?**

- ○ The KEDB is another term for the service knowledge management system (SKMS).
- ◉ Using the KEDB during incident diagnosis may speed up the resolution process.
- ○ It contains records for major problems only.
- ○ Users should not have access to the KEDB.

21. Problem management can help the service desk resolve incidents quickly by providing information about known errors. Problem management is dedicated to restoring normal service as defined in the service level agreement (SLA).

Select the correct answer.

- ◉ 1 only
- ○ 2 only
- ○ Both of the above
- ○ Neither of the above

22. A failure has occurred on a system and is detected by a monitoring tool. This system supports a live IT service. When should an incident be raised?

- ○ Not until an outage is reported by a user.
- ○ When a known workaround exists.
- ○ As part of routine log reviews.
- ◉ Immediately, to limit or prevent impact on users.

23. Which one of the following is the BEST example of a workaround for a printer that is out of service?

- ◉ A technician connects a user to an alternative printer during repairs on the primary printer.
- ○ A technician orders a replacement printer and installs it when it arrives.
- ○ Users temporarily avoid printing.
- ○ A technician repairs the primary printer and updates the known error database (KEDB).

24. Which one of the following is the BEST definition of an incident model?

- ○ A consistent sequence of activities for handling incidents efficiently.
- ○ A template used to create standardized incident records.
- ○ Definitions of incident types and associated response times as documented in the service level agreement (SLA).
- ◉ A set of pre-defined steps to be followed when dealing with a known type of incident.

25. Which one of the following is the BEST definition of an event?

- ○ A service disruption caused by a technical issue.
- ○ An interaction of a user with the service desk.
- ◉ A change of state that has significance for the management of an IT service.
- ○ The release of a service update into the live environment.

26. A user is unable to access a service during service hours. Downtime is required to release a planned upgrade. A network device log indicates a temporary increase in demand that is within device capacity thresholds. A user contacts the service desk about the slow performance of an application.

Select the correct answer.

- ○ All of the above
- ○ None of the above
- ◉ 1 and 4 only
- ○ 2 and 3 only

27. Incident management Problem management Access management ? ?

Select the correct answer.

- ◉ Event management and request fulfillment
- ○ Event management and knowledge management
- ○ Change management and request fulfillment
- ○ Change management and capacity management

28. Which one of the following BEST describes a major problem review?

○ Facilitated by the problem manager, a major problem review is designed to determine organizational responsibility for the problem.

○ Facilitated by the change manager, a major problem review enables the emergency change advisory board (ECAB) to determine whether to authorize the emergency change.

○ Facilitated by the service desk manager, a major problem review determines the organization's level of financial and legal responsibility when a service level agreement (SLA) has been breached.

◉ Facilitated by the problem manager, a major problem review identifies lessons learned from the major problem, and improves performance of support staff through training and awareness.

29. What is the BEST description of IT operations control?

○ It prepares and releases updates to services.

◉ It monitors and executes operational activities and events.

○ It is a group of technologies that monitor and log status and performance of configuration items (CIs).

○ It is a way to outsource routine infrastructure monitoring.

30. The service desk is a function that provides a single point of contact between the service provider and users. The service desk should be the owner of the problem management process.

Select the correct answer.

○ Both of the above

○ Neither of the above

◉ 1 only

○ 2 only

31. It is a function that provides a means of communication between IT and its users for all operational issues. It manages events, incidents, and problems. It is synonymous with the term Help Desk. One of its goals is to restore service as quickly as possible.

Select the correct answer.

○ All of the above

◉ 1 and 4 only

○ 2 and 4 only

○ 2 and 3 only

32. Which one of the following is the BEST description of the activities carried out by facilities management?

○ It manages services that are dependent on hardware appliances, such as printers or network access points.

◉ It provides general management of the physical IT environment, such as a data center or computer room.

○ It supervises the service desk.

○ It acquires and maintains the technical resources that are used by IT operations staff to maintain the infrastructure.

ACTIVITY 7-1: Discussing Basic Concepts of CSI

1. What is CSI's relation to the Service Lifecycle?

A: It is applied throughout and is an integral part of each stage.

2. What are some key objectives of CSI?

A: Answers might include: ensures that services align with changing business needs; aligns service support, service delivery, and customer requirements; assures quality throughout the lifecycle; and continually measures for improvement in efficiency and effectiveness.

3. Why is ownership important in CSI?

A: Ownership is important in CSI because if you want to accomplish anything in business, you have to have clear, unambiguous ownership and accountability for outcomes and results. Without this, there will be no improvement because of the tendency to blame others whenever services fail to meet the customer's expectations.

4. Which one or more of the following describe governance?

- ☐ Voting to see who should be the most accountable for a process.
- ☑ Ensuring that policies and strategy are actually implemented.
- ☐ Validating previous decisions.
- ☐ Defining what should be measured.
- ☑ Exerting control over something.

ACTIVITY 7-2: Discussing CSI Principles

1. What is the difference between a benchmark and a baseline?

A: A benchmark is a baseline used to compare related data. A baseline is a performance snapshot used as a reference point.

2. KPIs are used to measure the progress of:

- ☑ Activities
- ☐ Roles
- ☑ Services
- ☑ Processes
- ☐ Functions

3. In which step of the seven step improvement process are stakeholders informed about whether or not goals have been achieved?

- ○ Process data
- ◉ Present and use information
- ○ Implement the improvement
- ○ Analyze data

4. **Which of the following is the best example of the final stage in the CSI Approach?**

   ◉ Efforts are made to encourage and ensure all IT employees are following the new improvement by having all managers follow the same procedures and speak to its value.

   ○ IT employees are gathering data on the improvement implementation.

   ○ Efforts are made to compare the pre-change IT environment with the post-change to evaluate the improvement.

   ○ The business defines the vision for how the IT organization should operate and goals they should meet in the future.

Mastery Builder 7-1: Reviewing Continual Service Improvement

1. **Rudison Technologies wishes to improve the quality of internal service calls. What is this an example of?**

   ○ A Key Performance Indicator (KPI)

   ○ A Plan-Do-Check-Act (PDCA)

   ◉ A critical success factor (CSF)

   ○ A metric

2. **Fuller & Ackerman Publishing wishes to reduce its IT costs. What are some potential Key Performance Indicators (KPIs) to achieve this?**

   A: Answers may vary, but might include reducing the cost of handling incidents by 5 percent over a period of time, or an increase in customer satisfaction by 10 percent.

3. **If Fuller & Ackerman Publishing is trying to reduce its IT costs by reducing the cost of responding to printer incidents, what kinds of metrics might they choose to look at?**

   A: Answers will vary, but might make general reference to the three types of metrics: Technology, Process, and Service. Some specific examples might include the original cost of handling an incident, the current (improved) cost of handling an incident, and the cost of addressing and measuring the cost difference.

4. **Which of the following shows steps of the CSI Approach appearing in the correct order?**

   ○ What is the vision?; Where do we want to be?; Where are we now?; How do we get there?

   ◉ What is the vision?; Where are we now?; Where do we want to be?; How do we get there?

   ○ Where do we want to be?; How do we get there?; What is the vision?; Where are we now?

   ○ What is the vision?; Where do we want to be?; Did we get there?; Where are we now?

5. **Which step in the CSI Approach considers the areas of focus for potential improvements, gets clear understanding of the organization's mission, and maps out the organization's stakeholders?**
   - ◉ What is the vision?
   - ○ Where are we now?
   - ○ How do we get there?
   - ○ Did we get there?

6. **If you are performing analysis and benchmarking to determine the current state of your services, which phase of the CSI Approach are you pursuing?**
   - ○ What is the vision?
   - ◉ Where are we now?
   - ○ Where do we want to be?
   - ○ How do we get there?

7. Process metrics Service metrics Personnel metrics Technology metrics

   Select the correct answer.
   - ○ All of the above
   - ○ 1 and 4 only
   - ○ 2 and 4 only
   - ◉ 1, 2, and 4 only

8. Service metrics measure the end-to-end service. Each KPI should relate to a critical success factor. Metrics can be used to identify improvement opportunities. KPIs can be both qualitative and quantitative.

   Select the correct answer.
   - ◉ All of the above
   - ○ 1 only
   - ○ 2 and 3 only
   - ○ 1, 2, and 4 only

9. **Which one of the following is the CORRECT list of stages in the PDCA Model (Deming Cycle)?**
   - ○ Prepare, Do, Confirm, Act
   - ○ Prepare, Delivery, Check, Advise
   - ◉ Plan, Do, Check, Act
   - ○ Plan, Do, Confirm, Assess

10. How to improve process efficiency and effectiveness. How to improve services. Improvement of all stages of the service lifecycle.

    Select the correct answer.
    - ◉ All of the above
    - ○ 1 and 2 only
    - ○ 1 and 3 only
    - ○ 2 and 3 only

11. There are a number of activities and techniques that align with the CSI approach. Which activity would BEST help a business understand "where are we now?"?

- ○ Implementing a Service Improvement Plan (SIP).
- ○ Updating the CSI register.
- ◉ Reviewing performance against a baseline.
- ○ Determining feasibility of a proposed improvement.

Glossary

access
The practice by which users are allowed to make use of IT services, data, or other assets.

Access Management
The process responsible for allowing users to make use of IT services, data, or other assets. Access management helps to protect the confidentiality, integrity, and availability of assets by ensuring that only authorized users are able to access or modify them. Access management implements the policies of information security management and is sometimes referred to as rights management or identity management.

accounting
The process responsible for identifying the actual costs of delivering IT services, comparing these with budgeted costs, and managing variance from the budget.

activity
A set of actions designed to achieve a particular result. Activities are usually defined as part of processes or plans, and are documented in procedures.

alert
A notification that a threshold has been reached, something has changed, or a failure has occurred. Alerts are often created and managed by system management tools and are managed by the event management process.

AMIS
(Availability Management Information System) A set of tools, data, and information that is used to support availability management.

Analyze
The second step of the SPM process, where services are prioritized and aligned with demand in an effort to maximize the portfolio value.

Application Management
The function responsible for managing applications throughout their lifecycle.

application service provisioning
A service delivery model in which an external service provider provides IT services from a remote location via a network.

Approve
The third step of the SPM process, in which select services are authorized and assigned resources.

asset
Any resource or capability. The assets of a service provider include anything that could contribute to the delivery of a service. Assets can be one of the following types: management, organization, process, knowledge, people, information, applications, infrastructure, or financial capital.

asset management
A generic activity or process responsible for tracking and reporting the value and ownership of assets throughout their lifecycle.

availability
Ability of an IT service or other configuration item to perform its agreed-upon function when required. Availability is determined by reliability, maintainability, serviceability, performance, and security. Availability is usually calculated as a percentage. This calculation is often based on agreed-upon service time and downtime. It is best practice to calculate availability of an IT service using measurements of the business output.

Availability Management
The process responsible for ensuring that IT services meet the current and future availability needs of the business in a cost-effective and timely manner. Availability management defines, analyses, plans, measures, and improves all aspects of the availability of IT services, and ensures that all IT infrastructures, processes, tools, roles, etc. are appropriate for the agreed-upon service level targets for availability.

AXELOS
In 2015, this organization became responsible for defining the ITIL exams, qualification schemes, and certification systems; publishing the core ITIL books and associated syllabi; and accrediting the Examination Institutes.

balanced score card
A management tool developed by Drs Robert Kaplan (Harvard Business School) and David Norton. A balanced scorecard enables a strategy to be broken down into key performance indicators. Performance against the KPIs is used to demonstrate how well the strategy is being achieved. A balanced scorecard has four major areas, each of which has a small number of KPIs. The same four areas are considered at different levels of detail throughout the organization.

baseline
A snapshot that is used as a reference point. Many snapshots may be taken and recorded over time but only some will be used as baselines. For example: an ITSM baseline can be used as a starting point to measure the effect of a service improvement plan; a performance baseline can be used to measure changes in performance over the lifetime of an IT service; or a configuration baseline can be used as part of a back-out plan to enable the IT infrastructure to be restored to a known configuration if a change or release fails.

benchmark
A baseline that is used to compare related data sets as part of a benchmarking exercise. For example, a recent snapshot of a process can be compared to a previous baseline of that process, or a current baseline can be compared to industry data or best practice. See also benchmarking; baseline.

best practice
Proven activities or processes that have been successfully used by multiple organizations. ITIL is an example of best practice.

BIA
(Business Impact Analysis) Business impact analysis is the activity in business continuity management that identifies vital business functions and their dependencies. These dependencies may include suppliers, people, other business processes, IT services, etc. Business impact analysis defines the recovery requirements for IT services. These requirements include recovery time objectives, recovery point objectives, and minimum service level targets for each IT service.

budgeting
The activity of predicting and controlling the spending of money. Budgeting consists of a periodic negotiation cycle to set future budgets (usually annual) and the day-to-day monitoring and adjusting of current budgets.

Business Capacity Management
In the context of ITSM, business capacity management is the sub-process of capacity management responsible for understanding future business requirements for use in the capacity plan.

business case
Justification for a significant item of expenditure. The business case includes information about costs, benefits, options, issues, risks, and possible problems.

business process outsourcing
A service delivery model that uses an external organization to provide and/or manage another organization's processes.

business relationship management
The process responsible for maintaining a positive relationship with customers. Business relationship management identifies customer needs and ensures that the service provider is able to meet these needs with an appropriate catalog of services. This process has strong links with service level management.

Business Service Management
The management of business services delivered to business customers. Business service management is performed by business units.

CAB
(Change Advisory Board) A group of people that support the assessment, prioritization, authorization, and scheduling of changes. A change advisory board is usually made up of representatives from all areas within the IT service provider; the business; and third parties such as suppliers.

capability
The ability of an organization, person, process, application, IT service, or other configuration item to carry out an activity. Capabilities are intangible assets of an organization.

capacity
The maximum throughput that a configuration item or IT service can deliver. For some types of CI, capacity may be the size or volume; for example, a disk drive.

Capacity Management
The process responsible for ensuring that the capacity of IT services and the IT infrastructure is able to meet agreed-upon capacity- and performance-related requirements in a cost-effective and timely manner. Capacity management considers all resources required to deliver an IT service, and is concerned with meeting both the current and future capacity and performance needs of the business. Capacity management includes three sub-processes: business capacity management, service capacity management, and component capacity management.

capacity plan
A plan used to manage the resources required to deliver IT services. The plan contains details of current and historic usage of IT services and components, and any issues that need to be addressed (including related improvement activities). The plan also contains scenarios for different predictions of business demand and options to deliver the agreed-upon service level targets.

change
The addition, modification, or removal of anything that could have an effect on IT services. The scope should include changes to all architectures, processes, tools, metrics, and documentation, as well as changes to IT services and other configuration items.

change management
The process responsible for controlling the lifecycle of all changes, enabling beneficial changes to be made with minimum disruption to IT services.

chargeback
An internal payment model in which an IT department associates a cost with one or more specific services it offers and bills departments for these services when they are used.

charging
A pricing model in which an itemized bill of services is sent to a department describing the cost of the services rendered.

Charter
A document that contains details of a new service, a significant change, or other significant project. Charter can also be used to describe the act of authorizing the work required to complete the service change or project.

CI
(configuration item) Any component or other service asset that needs to be managed in order to deliver an IT service. Information about each configuration item is recorded in a configuration record within the configuration management system and is maintained throughout its lifecycle by service asset and configuration management. Configuration items are under the control of change management. They typically include IT services, hardware, software, buildings, people, and formal documentation such as process documentation and service level agreements.

CMDB
(Configuration Management Database) A database used to store configuration records throughout their lifecycle. The configuration management system maintains one or more configuration management databases, and each database stores attributes of configuration items, and relationships with other configuration items.

CMIS
(Capacity Management Information System) A set of tools, data, and information that is used to support capacity management.

CMS
(Configuration Management System) A set of tools, data, and information that is used to support service asset and configuration management. The CMS is part of an overall service knowledge management system and includes tools for collecting, storing, managing, updating, analyzing, and presenting data about all configuration items and their relationships. The CMS may also include information about incidents, problems, known errors, changes and releases. The CMS is maintained by service asset and configuration management and is used by all IT service management processes.

co-sourcing
A service delivery model that uses both internal and external service providers to manage IT services.

Component Capacity Management
The sub-process of capacity management responsible for understanding the capacity, utilization, and performance of configuration items. Data is collected, recorded, and analyzed for use in the capacity plan.

configuration baseline
The baseline of a configuration that has been formally agreed upon and is managed through the change management process. A configuration baseline is used as a basis for future builds, releases, and changes.

Continual Service Improvement
A stage in the lifecycle of a service. Continual Service Improvement ensures that services are aligned with changing business needs by identifying and implementing improvements to IT services that support business processes. The performance of the IT service provider is continually measured and improvements are made to processes, IT services, and IT infrastructure in order to increase efficiency, effectiveness, and cost effectiveness. Continual Service Improvement includes the seven-step improvement process. Although this process is associated with Continual Service Improvement, most processes have activities that take place across multiple stages of the Service Lifecycle.

corporate-level SLA
Generic services made available to the entire enterprise can be captured in a corporate-level SLA. All other services can then be documented using service-based or customer-based SLAs.

CSF
(critical success factor) Something that must happen if an IT service, process, plan, project, or other activity is to succeed. KPIs are used to measure the achievement of each critical success factor. For example, a CSF of protect IT services when making changes could be measured by KPIs such as percentage

reduction of unsuccessful changes, percentage reduction in changes causing incidents, etc.

CSI register
A database or structured document used to record and manage improvement opportunities throughout their lifecycle.

customer-based SLA
An agreement that includes all services that are required for a specific customer or customer group.

Define
The first step of the SPM process, in which the entire catalog of existing and proposed services of a particular provider are inventoried.

demand management
The process responsible for understanding, anticipating, and influencing customer demand for services. Demand management works with capacity management to ensure that the service provider has sufficient capacity to meet the required demand. At a strategic level, demand management can involve analysis of patterns of business activity and user profiles, while at a tactical level, it can involve the use of differential charging to encourage customers to use IT services at less busy times, or require short-term activities to respond to unexpected demand or the failure of a configuration item.

deployment
The activity responsible for movement of new or changed hardware, software, documentation, processes, etc., to the live environment. Deployment is part of the release and deployment management process.

DIKW
(Data-to-Information-to-Knowledge-to-Wisdom) A way of understanding the relationships between data, information, knowledge, and wisdom. DIKW shows how each of these builds on the others.

direct cost
The cost of providing an IT service which can be allocated in full to a specific customer, cost center, project, etc. For example, the cost of providing non-shared servers or software licenses.

DML
(Definitive Media Library) One or more locations in which the definitive and authorized versions of all software configuration items are securely stored. The definitive media library may also contain associated configuration items such as licenses and documentation. It is a single logical storage area even if there are multiple locations. The definitive media library is controlled by service asset and configuration management and is recorded in the configuration management system.

ECAB
(Emergency Change Advisory Board) A subgroup of the change advisory board that makes decisions about emergency changes. Membership may be decided at the time a meeting is called, and depends on the nature of the emergency change.

ELS
(early life support) A stage in the Service Lifecycle that occurs at the end of deployment and before the service is fully accepted into operation. During early life support, the service provider reviews key performance indicators, service levels, and monitoring thresholds, and may implement improvements to ensure that service targets can be met. The service provider may also provide additional resources for incident and problem management during this time.

emergency change
A change that must be introduced as soon as possible; for example, to resolve a major incident or implement a security patch. The change management process will normally have a specific procedure for handling emergency changes.

escalation
An activity that obtains additional resources when these are needed to meet service level targets or customer expectations. Escalation may be needed within any IT service management process, but is most commonly

associated with incident management, problem management, and the management of customer complaints. There are two types of escalation: functional escalation and hierarchic escalation.

event
A change of state that has significance for the management of an IT service or other configuration item. The term is also used to mean an alert or notification created by any IT service, configuration item, or monitoring tool. Events typically require IT operations personnel to take actions, and often lead to incidents being logged.

Event Management
The process responsible for managing events throughout their lifecycle. Event management is one of the main activities of IT operations.

Expanded Incident Lifecycle
Detailed stages in the lifecycle of an incident. The stages are detection, diagnosis, repair, recovery, and restoration. The Expanded Incident Lifecycle is used to help understand all contributions to the impact of incidents and to plan for how these could be controlled or reduced.

external service
Services that are delivered to individuals or groups outside of your organization. External services directly affect business outcomes.

external service provider
An IT service provider that is part of a different organization from its customer. An IT service provider may have both internal and external customers.

Facilities Management
The function responsible for managing the physical environment where the IT infrastructure is located. Facilities management includes all aspects of managing the physical environment; for example, power and cooling, building access management, and environmental monitoring.

failure
Loss of ability to operate to specification, or to deliver the required output. The term may be used when referring to IT services, processes, activities, configuration items, etc. A failure often causes an incident.

financial management
A generic term used to describe the function and processes responsible for managing an organization's budgeting, accounting, and charging requirements. Enterprise financial management is the specific term used to describe the function and processes from the perspective of the overall organization. Financial management for IT services is the specific term used to describe the function and processes from the perspective of the IT service provider

fixed cost
A cost that does not vary with IT service usage; for example, the cost of server hardware.

function
A team or group of people and the tools or other resources they use to carry out one or more processes or activities—for example, the service desk.

functional escalation
Transferring an incident, problem, or change to a technical team with a higher level of expertise to assist in an escalation.

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.

Help Desk
A point of contact for users to log incidents. A Help Desk is usually more technically focused than a Service Desk and does not provide a single point of contact for all interaction. The term Help Desk is often casually used as a synonym for Service Desk, but ITIL distinguishes between them.

hierarchic escalation
Informing or involving more senior levels of management to assist in an escalation.

high availability
An approach or design that minimizes or hides the effects of configuration item failure from the users of an IT service. High availability solutions are designed to achieve an agreed-upon level of availability and make use of techniques such as fault tolerance, resilience, and fast recovery to reduce the number and impact of incidents.

identity
A unique name that is used to identify a user, person, or role. The identity is used to grant rights to that user, person, or role. Example identities might be the username SmithJ or the role change manager.

impact
A measure of the effect of an incident, problem, or change on business processes. Impact is often based on how service levels will be affected. Impact and urgency are used to assign priority.

improvement
A measurable realignment of the service that better meets customer expectations.

incident
An unplanned interruption to an IT service or reduction in the quality of an IT service. Failure of a configuration item that has not yet affected service is also an incident; for example, failure of one disk from a mirror set.

Incident Management
The process responsible for managing the lifecycle of all incidents. Incident Management ensures that normal Service Operation is restored as quickly as possible and the business impact is minimized.

indirect cost
The cost of providing an IT service which cannot be allocated in full to a specific customer; for example, the cost of providing shared servers or software licenses. Also known as overhead.

Information Security Management
The process that ensures the confidentiality, integrity, and availability of an organization's assets, information, data, and IT services. Information Security Management usually forms part of an organizational approach to security management, which has a wider scope than the IT service provider, and includes handling information on paper, building access, phone calls, etc., for the entire organization.

information security policy
The policy that governs the organization's approach to information security management.

insourcing
Using an internal service provider to manage IT services. The term insourcing is also used to describe the act of transferring the provision of an IT service from an external service provider to an internal service provider.

internal service
Services that are delivered to individuals, groups, or departments within your organization.

internal service provider
An IT service provider that is part of the same organization as its customer. An IT service provider may have both internal and external customers.

invoicing
The charging method used to obtain payment from external customers.

ISMS
(Information Security Management System)
The framework of policy, processes, functions, standards, guidelines, and tools that ensures an organization can achieve its information security management objectives.

IT Operations Control
The function responsible for monitoring and control of the IT services and IT infrastructure.

IT Operations Management
The function within an IT service provider that performs the daily activities needed to manage IT services and the supporting IT

infrastructure. IT operations management includes IT operations control and facilities management.

IT service continuity
A measure of the ability of an organization to resolve a critical service interruption.

IT Service Continuity Management
The process responsible for managing risks that could seriously affect IT services. IT service continuity management ensures that the IT service provider can always provide minimum agreed-upon service levels, by reducing the risk to an acceptable level and planning for the recovery of IT services. IT service continuity management supports business continuity management.

IT service continuity plan
A plan defining the steps required to recover one or more IT services. The plan will also identify the triggers for invocation, people to be involved, communications, etc. The IT service continuity plan should be part of a business continuity plan.

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.

ITIL
(Information Technology Infrastructure Library) A set of best-practice publications for IT service management. ITIL gives guidance on the provision of quality IT services and the processes, functions, and other capabilities needed to support them. The ITIL framework is based on a Service Lifecycle and consists of five lifecycle stages (Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement), each of which has its own supporting publication. There is also a set of complementary ITIL publications providing guidance specific to industry sectors, organization types, operating models, and technology architectures.

itSMF
(IT Service Management Forum) The IT Service Management Forum is an independent organization dedicated to promoting a professional approach to IT service management. The itSMF is a not-for-profit membership organization with representation in many countries around the world (itSMF chapters). The itSMF and its membership contribute to the development of ITIL and associated IT service management standards.

job scheduling
Planning and managing the execution of software tasks that are required as part of an IT service. Job scheduling is carried out by IT operations management, and is often automated using software tools that run batch or online tasks at specific times of the day, week, month, or year.

knowledge management
The process responsible for sharing perspectives, ideas, experience, and information, and for ensuring that these are available in the right place and at the right time. The knowledge management process enables informed decisions, and improves efficiency by reducing the need to rediscover knowledge.

knowledge process outsourcing
A service delivery model that uses an external organization for its specialized domain knowledge.

known error
A problem that has a documented root cause and a workaround. Known errors are created and managed throughout their lifecycle by problem management. Known errors may also be identified by development or suppliers.

known error database
A database containing all known error records. This database is created by problem management and used by incident and problem management. The known error database may be part of the configuration management system, or may be stored elsewhere in the service knowledge management system.

KPI
(key performance indicator) A metric that is used to help manage an IT service, process, plan, project, or other activity. KPIs are used to measure the achievement of CSFs. Many metrics may be measured, but only the most important of these are defined as KPIs and used to actively manage and report on the process, IT service, or activity. They should be selected to ensure that efficiency, effectiveness, and cost effectiveness are all managed.

maintainability
A measure of how quickly and effectively an IT service or other configuration item can be restored to normal working after a failure. Maintainability is often measured and reported as MTRS. Maintainability is also used in the context of software or IT service development to mean ability to be changed or repaired easily.

measurement design
A way to create metrics that measure the capability and performance of processes associated with a lifecycle stage.

metric
Something that is measured and reported to help manage a process, IT service, or activity.

multi-level SLA
An agreement that uses a tiered approach to define the services needed by different groups, or different levels of management.

multi-sourcing
A relationship between two organizations that involves working closely together for common goals or a mutual benefit. Often known as a partnership.

normal change
A change that is not an emergency change or a standard change. Normal changes follow the defined steps of the change management process.

OLA
(operational level agreement) An agreement between an IT service provider and another part of the same organization. It supports the IT service provider's delivery of IT services to customers and defines the goods or services to be provided and the responsibilities of both parties. For example, there could be an OLA between the IT service provider and a procurement department to obtain hardware in agreed-upon times, or between the service desk and a support group to provide incident resolution in agreed-upon times.

operational change
A change that affects internal operations and is dependent on the nature of the organization.

operations bridge
A physical location where IT services and IT infrastructure are monitored and managed.

outcome
The result of carrying out an activity, following a process, or delivering an IT service. The term refers to both intended and actual results.

outsourcing
Using an external service provider to manage IT services.

PBA
(Pattern of Business Activity) A workload profile of one or more business activities. Patterns of business activity are used to help the IT service provider understand and plan for different levels of business activity.

PDCA Model
A four-stage cycle for process management, attributed to Edward Deming. Plan-Do-Check-Act is also called the Deming Cycle. Plan – design or revise processes that support the IT services; Do – implement the plan and manage the processes; Check – measure the processes and IT services, compare with objectives, and report on the findings.

priority
A category used to identify the relative importance of an incident, problem, or change. Priority is based on impact and urgency, and is used to identify required times for actions to be taken. For example, the service level agreement may state that Priority 2 incidents must be resolved within 12 hours.

proactive change
A change that is made before a problem has occurred, which is aimed at improving the benefits of a service.

problem
A cause of one or more incidents. The cause is not usually known at the time a problem record is created, and the problem management process is responsible for further investigation.

Problem Management
The process responsible for managing the lifecycle of all problems. Problem management proactively prevents incidents from happening and minimizes the impact of incidents that cannot be prevented.

problem record
A record containing the details of a problem. Each problem record documents the lifecycle of a single problem.

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

Process Manager
The role responsible for the operational management of a process. The process manager's responsibilities include planning and coordination of all activities required to carry out, monitor, and report on the process. The process manager's role is often assigned to the person who carries out the process owner role, but the two roles may be separate in larger organizations.

process model
A visual representation of the workflow and decision-making that occurs within a process, and can be seen as a standard template that organizations can modify according to their own needs in a given lifecycle stage.

Process Owner
The person who is held accountable for ensuring that a process is fit for purpose. The process owner's responsibilities include sponsorship, design, change management, and continual improvement of the process and its metrics. This role can be assigned to the same person who carries out the process manager role, but the two roles may be separate in larger organizations.

Process Practitioner
The generic role that is responsible for the actual carrying out of the process.

provisioning value
All tangible and intangible costs associated with implementing a service.

RACI Model
A model used to help define roles and responsibilities. RACI stands for responsible, accountable, consulted, and informed.

reactive change
A change that is made to address a problem or interruption that has already occurred.

release
One or more changes to an IT service that are built, tested, and deployed together. A single release may include changes to hardware, software, documentation, processes, and other components.

release and deployment management
The process responsible for planning, scheduling, and controlling the build, test, and deployment of releases, and for delivering new functionality required by the business while protecting the integrity of existing services.

release design
The aspect of release and deployment management that is concerned with how the release should be distributed to users. The most frequent options for release rollout are “big bang” versus phased, and “push” versus “pull.”

release management
See Release and deployment management.

release package
A set of configuration items that will be built, tested, and deployed together as a single release. Each release package will usually include one or more release units.

release policy
A governing tool that guides the process of a release along its development and rollout.

release unit
Components of an IT service that are normally released together. A release unit typically includes sufficient components to perform a useful function. For example, one release unit could be a desktop PC, including hardware, software, licenses, documentation, etc. A different release unit may be the complete payroll application, including IT operations, procedures, and user training.

reliability
A measure of how long an IT service or other configuration item can perform its agreed-upon function without interruption. Usually measured as MTBF or MTBSI. The term can also be used to state how likely it is that a process, function, etc. will deliver its required outputs.

remediation
Actions taken to recover after a failed change or release. Remediation may include back-out, invocation of service continuity plans, or other actions designed to enable the business process to continue.

Request Fulfillment
The process responsible for managing the lifecycle of all service requests.

resource
A generic term that includes IT infrastructure, people, money, or anything else that might help to deliver an IT service. Resources are considered to be assets of an organization.

retired services
Services that have been phased out and are no longer supported.

RFC
(request for change) A formal proposal for a change to be made. It includes details of the proposed change, and may be recorded on paper or electronically. The term is often misused to mean a change record, or the change itself.

rights
Entitlements, or permissions, granted to a user or role; for example, the right to modify particular data, or to authorize a change.

risk
A possible event that could cause harm or loss, or affect the ability to achieve objectives. A risk is measured by the probability of a threat, the vulnerability of the asset to that threat, and the impact it would have if it occurred. Risk can also be defined as uncertainty of outcome, and can be used in the context of measuring the probability of positive outcomes as well as negative outcomes.

risk analysis
The process of gathering information about exposure to risk, and involves identifying and assessing the value of assets, the levels of threats to the assets, and the vulnerabilities of those assets.

risk management
The process responsible for identifying, assessing, and controlling risks. Risk management is also sometimes used to refer to the second part of the overall process after risks have been identified and assessed, as in "risk assessment and management." This process is not described in detail within the core ITIL publications.

role
A set of responsibilities, activities, and authorities assigned 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. The term "role" is also used to describe the purpose of something or what it is used for.

SACM
(service asset and configuration management) The process responsible for ensuring that the assets required to deliver services are properly controlled, and that accurate and reliable information about those assets is available when and where it is needed. This information includes details of how the assets have been configured and the relationships between assets.

SCM
(Service Catalog Management) The process responsible for providing and maintaining the service catalog and for ensuring that it is available to those who are authorized to access it.

SCMIS
(Supplier and Contract Management Information System) A set of tools, data, and information that is used to support supplier management.

secure library
A collection of software and electronic CI documents of a known type and status.

secure store
A secure location where spare IT assets are stored.

service
A means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks. The term "service" is sometimes used as a synonym for core service, IT service, or service package.

service asset
Any resource or capability of a service provider.

service automation
The usage of technology to manage and analyze assets that are used to perform IT services.

Service Capacity Management
The sub-process of capacity management responsible for understanding the performance and capacity of IT services. Information on the resources used by each IT service and the pattern of usage over time are collected, recorded, and analyzed for use in the capacity plan.

service catalog
A database or structured document with information about all live IT services, including those available for deployment. The service catalog is part of the service portfolio and contains information about two types of IT service: customer-facing services that are visible to the business; and supporting services required by the service provider to deliver customer-facing services.

Service Design
A stage in the lifecycle of a service. Service Design includes the design of the services, governing practices, processes, and policies required to realize the service provider's strategy and to facilitate the introduction of services into supported environments. Service Design includes the following processes: design coordination, service catalog management, service level management, availability management, capacity management, IT service continuity management, information security management, and supplier management. Although these processes are associated with Service Design, most processes have activities that take place across multiple stages of the Service Lifecycle.

Service Design package
Document(s) defining all aspects of an IT service and its requirements through each stage of its lifecycle. A Service Design package is produced for each new IT service, major change, or IT service retirement.

Service Desk
The single point of contact between the service provider and the users. A typical service desk manages incidents and service requests, and also handles communication with the users.

service group
A collection of services that are bundled, and access to these bundles is then given to users.

Service Level Management
The process responsible for negotiating achievable service level agreements and ensuring that these are met. It is responsible for ensuring that all IT service management processes, operational level agreements, and underpinning contracts are appropriate for the agreed-upon service level targets. Service level management monitors and reports on service levels, holds regular service reviews with customers, and identifies required improvements.

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

Service Operation
A stage in the lifecycle of a service. Service Operation coordinates and carries out the activities and processes required to deliver and manage services at agreed-upon levels to business users and customers. Service Operation also manages the technology that is used to deliver and support services. Service Operation includes the following processes: event management, incident management, request fulfillment, problem management, and access management. Service Operation also includes the following functions: service desk, technical management, IT operations management, and application management. Although these processes and functions are associated with Service Operation, most processes and functions have activities that take place across multiple stages of the Service Lifecycle.

Service Owner
The role responsible for managing one or more services throughout their entire lifecycle. Service owners are instrumental in the development of service strategy and are responsible for the content of the service portfolio.

service pipeline
A database or structured document listing all IT services that are under consideration or development, but are not yet available to customers. The service pipeline provides a business view of possible future IT services and is part of the service portfolio that is not normally published to customers.

service portfolio
The complete set of services that is managed by a service provider. The service portfolio is used to manage the entire lifecycle of all services, and includes three categories: service pipeline (proposed or in development), service catalog (live or available for deployment), and retired services.

Service Portfolio Management
The process responsible for managing the service portfolio. Service portfolio management ensures that the service provider has the right mix of services to meet required business outcomes at an appropriate level of investment. Service portfolio management considers services in terms of the business value that they provide.

service provider
An organization supplying services to one or more internal customers or external customers. Service provider is often used as an abbreviation for IT service provider.

service request
A formal request from a user for something to be provided; for example, a request for information or advice; to reset a password; or to install a workstation for a new user. Service requests are managed by the request fulfillment process, usually in conjunction with the service desk. Service requests may be linked to a request for change as part of fulfilling the request.

service requirement
A customer requirement for an aspect of a service.

service review
A periodic analysis of the service being provided to ensure that it is meeting or exceeding customer requirements.

Service Strategy
A stage in the lifecycle of a service. Service Strategy defines the perspective, position, plans

and patterns that a service provider needs to execute to meet an organization's business outcomes. Service Strategy includes the following processes: strategy management for IT services, service portfolio management, financial management for IT services, demand management, and business relationship management. Although these processes are associated with Service Strategy, most processes have activities that take place across multiple stages of the Service Lifecycle.

Service Transition
A stage in the lifecycle of a service. Service Transition ensures that new, modified, or retired services meet the expectations of the business as documented in the Service Strategy and Service Design stages of the lifecycle. Service Transition includes the following processes: transition planning and support, change management, service asset and configuration management, release and deployment management, service validation and testing, change evaluation, and knowledge management. Although these processes are associated with Service Transition, most processes have activities that take place across multiple stages of the Service Lifecycle.

service valuation
A measurement of the total cost of delivering an IT service, and the total value to the business of that IT service. Service valuation is used to help the business and the IT service provider agree on the value of the IT service.

service value potential
The perceived improvement in value of implementing a service.

service-based SLA
An agreement that outlines all aspects of a particular service, regardless of the customer.

serviceability
The ability of a third-party supplier to meet the terms of their contract. This contract will include agreed-upon levels of reliability, maintainability, or availability for a CI.

SIP
(Service Improvement Plan) A formal plan to implement improvements to a process or IT service.

SKMS
(Service Knowledge Management System) A set of tools and databases that is used to manage knowledge, information, and data. The service knowledge management system includes the configuration management system, as well as other databases and information systems. The service knowledge management system includes tools for collecting, storing, managing, updating, analyzing, and presenting all the knowledge, information, and data that an IT service provider will need to manage the full lifecycle of IT services.

SLA
(Service Level Agreement) An agreement between an IT service provider and a customer. A service level agreement 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.

SLAM chart
A service level agreement monitoring chart is used to help monitor and report achievements against service level targets. A SLAM chart is typically color-coded to show whether each agreed-upon service level target has been met, missed, or nearly missed during each of the previous 12 months.

SLR
(Service Level Requirement) A customer requirement for an aspect of an IT service. Service level requirements are based on business objectives and used to negotiate agreed-upon service level targets.

snapshot
The current state of a configuration item, process, or any other set of data recorded at a specific point in time. Snapshots can be captured by discovery tools or by manual techniques such as an assessment.

stakeholder
A person who has an interest in an organization, project, or IT service, including the activities, targets, resources, or deliverables. Stakeholders may include customers, partners, employees, shareholders, owners, etc.

standard change
A pre-authorized change that is low risk, relatively common, and follows a procedure or work instruction; for example, a password reset or provision of standard equipment to a new employee. Requests for change are not required to implement a standard change, and they are logged and tracked using a different mechanism, such as a service request.

strategic change
A change aimed at achieving a specific objective at the lowest possible cost and risk.

Super User
A user who helps other users, and assists in communication with the service desk or other parts of the IT service provider. Super users are often experts in the business processes supported by an IT service and will provide support for minor incidents and training.

supplier
A third party 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.

Supplier Management
The process responsible for obtaining value for money from suppliers, ensuring that all contracts and agreements with suppliers support the needs of the business, and that all suppliers meet their contractual commitments.

tactical change
A change that applies to services within the service catalog or within development in the service portfolio.

Technical Management
The function responsible for providing technical skills in support of IT services and management of the IT infrastructure. Technical management defines the roles of support groups, as well as the tools, processes, and procedures required.

trigger
Something that initiates a response in the Event Management process.

Type I 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 service provider
An internal service provider that provides shared IT services to more than one business unit. Type II service providers are also known as shared service units.

Type III service provider
A service provider that provides IT services to external customers.

underpinning contract
A legally binding agreement between an IT service provider and one of its suppliers. The third party provides goods or services that support delivery of an IT service to a customer.

urgency
A measure of how long it will be until an incident, problem, or change has a significant impact on the business. For example, a high-impact incident may have low urgency if the impact will not affect the business until the end of the financial year. Impact and urgency are used to assign priority.

utility
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." The business value of an IT service is created by the combination of utility and warranty.

value creation
The combination of utility and warranty that produces a positive effect.

variable cost
A cost that depends on how much the IT service is used, how many products are produced, the number and type of users, or something else that cannot be fixed in advance.

VBF
(Vital Business Function) Part of a business process that is critical to the success of the business. Vital business functions are an important consideration of business continuity management, IT service continuity management, and availability management.

warranty
Assurance that a product or service will meet agreed-upon requirements. This may be a formal agreement such as a service level agreement or contract, or it may be 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." The business value of an IT service is created by the combination of utility and warranty.

workaround
Reducing or eliminating the impact of an incident or problem for which a full resolution is not yet available—for example, by restarting a failed configuration item. Workarounds for problems are documented in known error records. Workarounds for incidents that do not have associated problem records are documented in the incident record.

Index

D

E

F

G

H

I

J

K

L

M

T

U

V

W