



ITIL® v3 Foundation Study Guide

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About taruu

taruu is a specialized Service Management firm which focuses on simple and practical applications of otherwise complex bodies of guidance such as ITIL®. **taruu** offers a full range of certification and non-certification-based ITSM training, courseware, and ITSM consulting and implementation services. Please visit us on the web at <http://www.taruu.com>.

Overview

This study guide summarizes the most essential information necessary to successfully challenge the ITIL® v3 Foundation examination. It can be used as a stand-alone study aid. However, it is primarily intended to reinforce concepts that have already been introduced in an ITIL® v3 Foundation training class.

In this document, words you encounter in **bold-face type** represent terms of special significance in ITIL®. For purpose of the ITIL® Foundation exam, you should ensure that such terms are familiar to you in their precise definitions. For assistance with these and other terms, please refer to the ITIL® Glossary included with your course materials or refer to the [taruu online ITIL Glossary of Terms](#).

Additional Exam Resources

In addition to this guide and the taruu online [ITIL v3 Glossary of Terms](#), you should also avail yourself of taruu's online [ITIL v3 Foundation Exam Practice Questions](#).



General Exam Tips

- The exam consists of 40 multiple choice questions.
- You have 60 minutes to complete the exam. Most test-takers have plenty of time. Don't hurry!
- There are no trick questions, but **questions are often precisely worded**.
- Read each question multiple times.
- Be cautious of answers which use the terms "ALWAYS" or "NEVER".
- Many questions contain at least one distracter. Use a process of elimination to remove obviously wrong answers from your consideration first, and then focus on the remaining answers.
- If a question uses boldface type, italics, or uppercase type to highlight a specific word, pay close attention!
- If a question is about a process, make sure the answer you select is about a process rather than a function, service, etc. and vice versa.
- Make sure to answer questions based upon your ITIL® knowledge, not on your experience in the real world. Your real world experience may or may not have anything to do with ITIL®.
- Choose the best answer! Often questions contain several answers which, in some way, *could* be correct. Don't work too hard to come up with a correct scenario for a specific answer. Rather, choose the answer which would be most correct in the greatest number of situations.

What's On the Exam

The exam follows a standard, published syllabus which covers the several areas described in the table below.

Area	You need to know how to or be familiar with...
Service Management as a Practice	<ul style="list-style-type: none"> • Describe the concept of <i>Good Practice</i> • Define and explain the concept of a <i>Service</i> • Define and explain the concept of <i>Service Management</i> • Define and distinguish between <i>Functions, Roles and Processes</i> • Explain the <i>process</i> model • List the characteristics of <i>processes</i> (Measurable, Specific results, <i>Customers</i>, and Responds to a specific event)
The Service Lifecycle	<ul style="list-style-type: none"> • Briefly explain the Service Lifecycle • Describe the structure, scope, components and interfaces of the ITIL® Library. • Account for the main goals and objectives of Service Strategy • Account for the main goals and objectives of Service Design • Briefly explain what value Service Design provides to the business • Account for the main goals and objectives of Service Transition • Briefly explain what value Service Transition provides to the business • Account for the main goals and objectives of Service Operations (SO) • Briefly explain what value Service Operation provides to the <i>business</i> • Account for the main goals and objectives of Continual Service Improvement • Briefly explain what value Continual Service Improvement provides to the business

Area	You need to know how to or be familiar with...
General Concepts and Definitions	<ul style="list-style-type: none"> • Utility and Warranty • Resources and Capabilities • Service Portfolio • Service Catalogue (Business Service Catalogue and Technical Service Catalogue) • The role of IT Governance across the Service Lifecycle • Business Case • Risk • Service Model • Service Provider • Supplier • Service Level Agreement (SLA) • Operational Level Agreement (OLA) • Contract • Service Design Package • Availability • Service Knowledge Management System (SKMS) • Configuration Item (CI) • Configuration Management System • Definitive Media Library (DML) • Service Change • Change types (Normal, Standard and Emergency) • Release Unit • Seven R's of Change Management • Event (SO 4.1) • Alert • Incident • Impact, Urgency and Priority • Service Request • Problem • Workaround • Known Error

Area	You need to know how to or be familiar with...
	<ul style="list-style-type: none"> • Known Error Data Base (KEDB) • The role of communication in Service Operation
Key Principles and Models	<p><i>Within Service Strategy</i></p> <ul style="list-style-type: none"> • Explain how Service Assets are the basis for Value Creation • Describe basics of Value Creation through Services <p><i>Within Service Design</i></p> <ul style="list-style-type: none"> • Understand the importance of People, Processes, Products and Partners for Service Management • Discuss the five major aspects of Service Design <ul style="list-style-type: none"> ○ Service Portfolio Design ○ Identification of Business Requirements, definition of Service Requirements and design of Services ○ Technology and architectural design ○ Process design • Measurement design • Distinguish between different Service Sourcing approaches and options <p><i>Within Service Transition</i></p> <ul style="list-style-type: none"> • Explain the Service V model • Within Service Operation • Explain the balance between Stability versus Responsiveness • Explain the balance between Quality of Service versus Cost of Service • Explain the balance between Reactive versus Proactive focus <p><i>Within Continual Service Improvement</i></p> <ul style="list-style-type: none"> • Discuss the Plan, Do, Check and Act (PDCA) Model to control and manage quality • Explain the Continual Service Improvement Model • Understand the role of measurement for Continual Service Improvement and explain the following key elements: <ul style="list-style-type: none"> ○ Business value ○ Baselines

Area	You need to know how to or be familiar with...
	<ul style="list-style-type: none"> ○ Types of metrics (technology metrics, process metrics, service metrics) ○ metrics)
<p>Processes</p>	<p>Service Strategy</p> <ul style="list-style-type: none"> • Outline the four main activities in the Service Strategy process <ul style="list-style-type: none"> ○ Define the market (SS 4.1) ○ Develop the offerings (SS 4.2) ○ Develop strategic assets (SS 4.3) ○ Prepare for execution (SS 4.4) • State the objectives and basic concepts and roles for: <ul style="list-style-type: none"> ○ Service Portfolio Management ○ Demand Management ○ Financial Management <p>Service Design</p> <ul style="list-style-type: none"> • Explain the high level objectives, scope, basic concepts, process activities, key metrics (KPI's), roles and challenges for: <ul style="list-style-type: none"> ○ <i>Service Level Management (SLM)</i> • State the objectives, basic concepts and roles for: <ul style="list-style-type: none"> ○ <i>Service Catalogue Management</i> ○ <i>Availability Management</i> ○ <i>Information Security Management (ISM)</i> ○ <i>Supplier Management</i> ○ <i>Capacity Management</i> ○ <i>IT Service Continuity Management</i> <p>Service Transition</p> <ul style="list-style-type: none"> • Explain the high level objectives, scope, basic concepts, process activities, key metrics, roles and challenges for: <ul style="list-style-type: none"> ○ <i>Change Management</i> • State the objectives, basic concepts and roles for: <ul style="list-style-type: none"> ○ Service Asset and Configuration Management (SACM) ○ Release and Deployment Management

Area	You need to know how to or be familiar with...
	<p>Service Operation</p> <ul style="list-style-type: none"> • Explain the high level objectives, scope, basic concepts, process activities, metrics, roles and challenges for: <ul style="list-style-type: none"> ○ Incident Management ○ State the objectives, basic concepts and roles for: ○ Event Management ○ Request Fulfillment ○ Problem Management ○ Access Management <p>Continual Service Improvement</p> <ul style="list-style-type: none"> • Explain the high level objectives, basic concepts, process activities, roles and metrics for: <ul style="list-style-type: none"> ○ The 7 step improvement process
Functions	<ul style="list-style-type: none"> • Explain the role, objectives, organizational structures, staffing and metrics of: <ul style="list-style-type: none"> ○ The Service Desk function • State the role, objectives and organizational overlap of: <ul style="list-style-type: none"> ○ The Technical Management function ○ The Application Management function ○ The IT Operations Management function <ul style="list-style-type: none"> ▪ IT Operations Control ▪ Facilities Management
Roles	<ul style="list-style-type: none"> • Account for the role and the responsibilities of the <ul style="list-style-type: none"> ○ Process owner ○ Service owner • Recognize the RACI model and explain its role in determining organizational structure.
Technology and Architecture	<ul style="list-style-type: none"> • List some generic requirements for an integrated set of Service Management Technology • Understand how Service Automation assists with integrating Service Management processes

ITIL Core Concepts

Services

Services are a means of delivering value to customers without requiring the customer to own specific costs and risks.

Service Management

Service Management is a set of specialized capabilities for delivering value to customers in the form of services. ITIL® is a framework for **IT Service Management**.

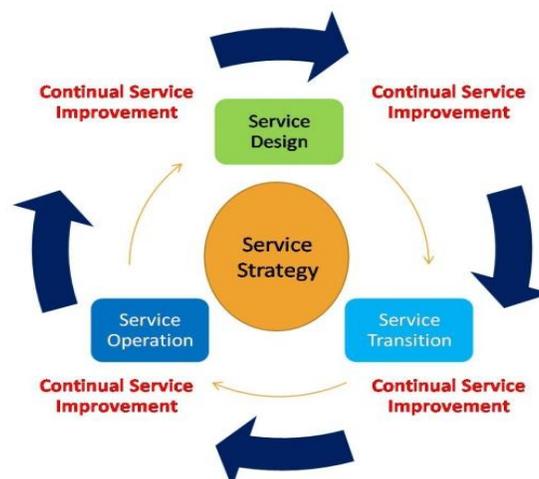
ITIL as a Good Practice Framework

Good practices are best practices which have gained wide acceptance and adoption. In short, Good Practices have withstood the test of time. **Good Practices** may come from a number of sources including:

- Standards
- Public frameworks
- Academic research
- Proprietary knowledge

The Service Lifecycle

The **core** of ITIL® is structured around a **Service Lifecycle** which consists of the five phases shown in the illustration below. Each lifecycle phase is discussed in more detail later in this study guide. The **Service Lifecycle** organizes activity around services as the services move from concept through the live environment and into retirement. The ITIL® ‘core’ documentation consists of five volumes representing each of the phases of the **Service Lifecycle**.



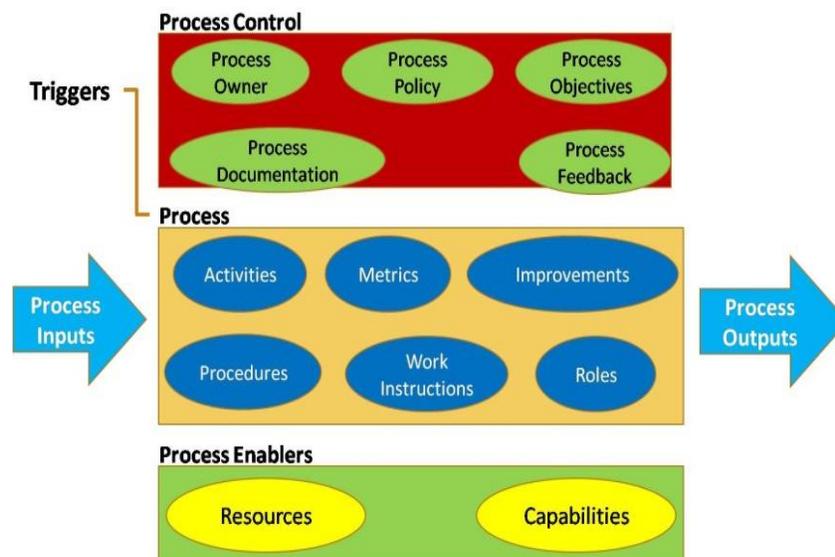
Processes

Processes are **structured sets of activities** designed to achieve a specific objective. Processes have four basic characteristics:

1. They transform inputs into outputs
2. They deliver results to a specific customer or stakeholder
3. They are measurable
4. They are triggered by specific events

ITIL® addresses a number of specific processes associated with each lifecycle phase, but also discusses processes in terms of their generic structure shown in the three-layered model below.

- **Process Control**, such as process policies, ownership, documentation, review programs, etc.
- **The Process itself** including process steps, procedures, work instructions, roles, triggers, metrics, inputs, and outputs.
- **Process Enablers** such as resources and capabilities required to support the process.





ITIL Processes by Lifecycle Phase

Lifecycle Phase	Processes
Service Strategy	<ul style="list-style-type: none">• Service Strategy• Service Portfolio Management• Demand Management• Financial Management
Service Design	<ul style="list-style-type: none">• Service Catalog Management• Service Level Management• Availability Management• Capacity Management• Service Continuity Management• IT Security Management• Supplier Management
Service Transition	<ul style="list-style-type: none">• Change Management• Service Asset and Configuration Management• Release and Deployment Management• Transition Planning and Support *• Service Validation and Testing *• Evaluation *• Knowledge Management *
Service Operation	<ul style="list-style-type: none">• Incident Management• Problem Management• Event Management• Service Request Fulfillment• Access Management
Continual Service Improvement	<ul style="list-style-type: none">• The Seven Step Improvement Process

**Processes not covered as part of the ITIL® v3 Foundation Exam*

Functions

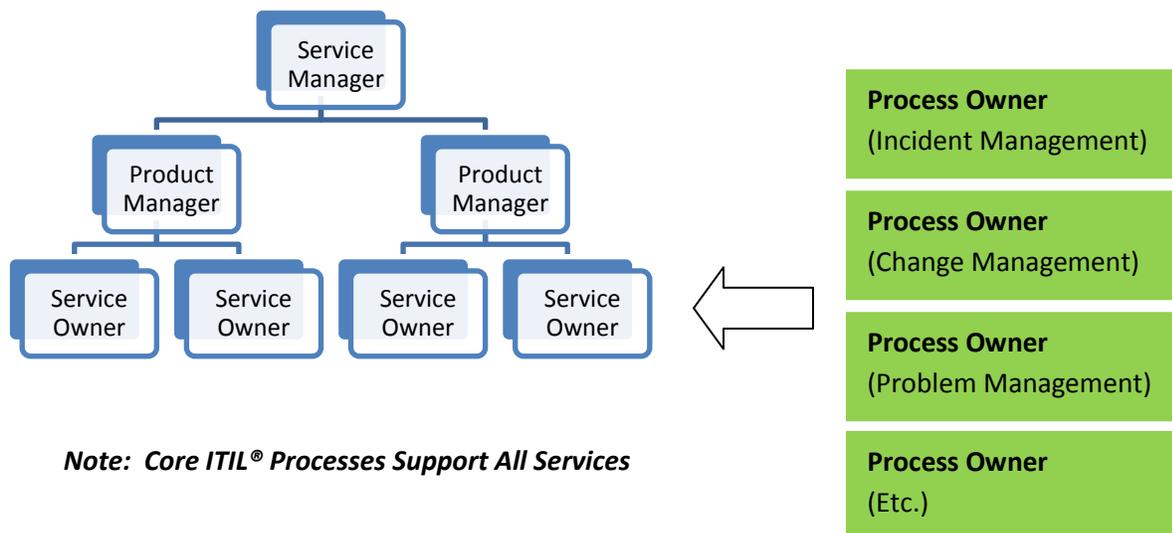
Functions are self-contained subsets of an organization intended to accomplish specific tasks. They usually take the form of a **team or group of people and the tools they use**. Whereas **processes** help organizations accomplish specific objectives--often across multiple functional groups--**functions** add structure and stability to organizations.

Functions generally map fairly directly to the organizational chart of an organization and are usually supported by budgets and reporting structures. Processes, by contract, typically do not have budgets and reporting structures. Both functions and processes involve roles.

Roles

Roles are defined collections of specific responsibilities and privileges. **Roles** may be held by individuals or teams. Individuals and teams may hold more than one role. ITIL® emphasizes a number of standard **roles** include, most importantly:

- **Service Owner** -- Accountable for the overall design, performance, integration, improvement, and management of a single service.
- **Process Owner** -- Accountable for the overall design, performance, integration, improvement, and management of a single process.
- **Service Manager** -- Accountable for the development, performance, and improvement of all services in the environment.
- **Product Manager** – Accountable for development, performance, and improvement of a group of related services.





Organizing For Service Management

ITIL® discusses a number of recommendations for how IT **Service Management** organizations can best be structured. Most of this discussion focuses on four major **functions (Service Desk, Technical Management, Application Management, and IT Operations Management)**. However, ITIL® also pays attention to the relationship between **processes** and **functions**, to standard **roles** which are particularly important to a good ITSM effort, and to ways of properly allocating roles to any task or activity.

ITIL® Functions

Service Desk

The **Service Desk** provides a **single point of contact** between users and the IT organization. The **Service Desk** processes inbound incidents, service requests, change requests, etc. It usually (but not always) owns and executes the **Incident Management** process. The **Service Desk** also acts as a hub for all communications internal to the IT **Service Provider**.

Four basic Service Desk configurations are discussed within ITIL®:

- **Local** – Users and support staff are located on the same premises or campus.
- **Centralized** -- Multiple user locations are serviced by a single support location.
- **Virtual** -- Multiple user location are serviced by multiple support locations which by virtue of call routing and other technology are able to appear and respond to user requests as a single entity.
- **Follow-the-Sun** -- Identical to a virtual **Service Desk**, but organized in such a way as to utilize support staff shifts working during normal daylight hours for all user requests coming from any time zone.

Technical Management

The **Technical Management** function is charged with procurement, development, and management of the **technical skill sets and resources** required to support the infrastructure and the IT **Service Management** effort.

Technical Management is typically divided into specialty areas representing different specialized teams or functions within an IT organization, e.g. Networking, Security, Database, Storage, Servers, etc. The primary objective of **Technical Management** is to ensure that the **Service Provider** has the right skill sets available to deliver the services it offers.

Application Management

Application Management is concerned with the end-to-end management of applications in the environment. Like **Technical Management**, a big part of what it does involves cultivation of the specialized skill sets required to support the organization's applications. **Application Management** does

not replace, but rather executes and is supported by core processes such as **Incident Management**, **Problem Management**, **Change Management**, **Availability Management**, etc.

IT Operations Management

IT Operations Management is concerned with the day-to-day maintenance of the IT infrastructure and the facilities which house it. It is divided into two sub-functions: **Operations Control** and **Facilities Management**.

Operations Control

The **Operations Control** sub-function is concerned with regular maintenance cycles associated with infrastructure management. These include such activities as:

- Console Management
- Backup and restore operations
- Media management
- Batch job execution

Facilities Management

Facilities Management is concerned with maintenance of the facilities which house IT operations, e.g. data centers, call centers, development facilities, etc. Its areas of responsibility include things like:

- HVAC
- Fire suppression
- Facilities access
- Power

The RACI Model

In addition to discussing the four primary functions described above, ITIL also utilizes the **RACI** model as a generic tool for reviewing and assigning four key roles to any important task or activity. Whereas role assignments are often well-defined within **functions**, the **RACI** model holds particular value for ensuring that roles are appropriately filled or covered within **processes**.

- Those in the **R = RESPONSIBLE** role for a given activity are charged with actually executing or performing the activity or task.
- The single entity in the **A = ACCOUNTABLE** role owns the task or activity and must answer for its outcomes. *Only one party can be accountable for a given task/activity.*
- Those in the **C = CONSULTED** role review and provide advice and authorization around the task or activity.
- Those in the **I = INFORMED** role receive updates as the task or activity progresses.



The table below provides a sample of how **RACI** might be used to assign roles to a series of tasks associated with an application development project. Note that all rows have one and only one ACCOUNTABLE and at least one RESPONSIBLE.

Task	Application Developer	Application Owner	Business Representative	Business Analyst
Draft Requirements		A	C	R
Validate Requirements	R	A	R	R
Create Logical Design	R	C	I	R
Create Data Design	A/R	I		R
Validate Design		A/R	C	R

Service Strategy

Overview

Service Strategy is about the selection of services a **Service Provider** will offer to customers. Services are selected so that they:

- Provide value to customers
- Enable the Service Provider to capture value
- Fall within cost parameters acceptable to the Service Provider
- Fall with risk parameters acceptable to the Service Provider

Service Strategy is also about establishment and management of the broadest policies and standards which govern the way a Service Provider operates.

Business Value

Service Strategy offers value to **Service Providers** and customers by:

- Ensuring that the services they offer align with business objectives.
- Ensuring that the services they offer are likely to offer value.
- Ensuring that customers can be charged for the services or that some mechanism exists by which the services allow the value offered by the Service Provider to be recognized.
- Ensuring that the **Service Provider** is in a position to handle the costs and risks associated with the services it offers.

Concepts and Models

Business Case

A **Business Case** is a structured and documented justification for investment in something expected to deliver value in return, e.g. an IT Service. **Business Cases** are used during **Service Strategy** to evaluate the feasibility and desirability of creating and providing various IT Services.

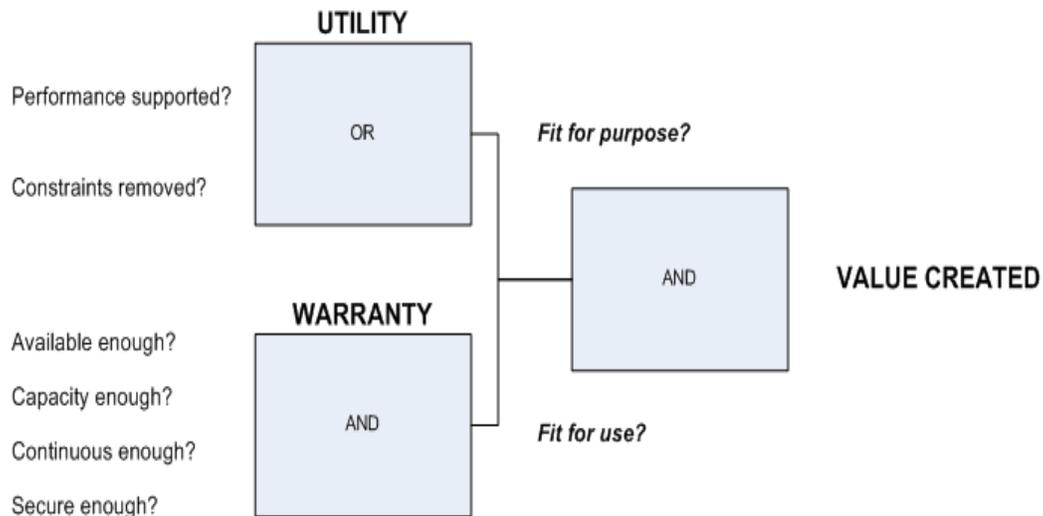
Return on Investment (ROI)/Value on Investment (VOI)

Return on Investment and Value on Investment

Value: Utility and Warranty

The value of service consists of two components: **utility** and **warranty**. Services must offer both **utility** and **warranty** in order to have value.

- **Utility**, also called ‘fitness for purpose’ involves the ability of the service to remove constraints or increase the performance of the customer.
- **Warranty**, also called ‘fitness for use’ is the ability of the service to operate reliably.



Service Assets

Service Assets or (more generally) **assets** refer to the **resources** and **capabilities** which a Service Provider must allocate in order to offer a service.

Resources are the raw materials which contribute to a service, such as money, equipment, time, staff, etc. **Capabilities** are the specialized skills or abilities an organization applies to resources in order to create value. **Capabilities** include such things as skills, organization, processes, management, etc.

Resources and **capabilities** are both types of **assets**.

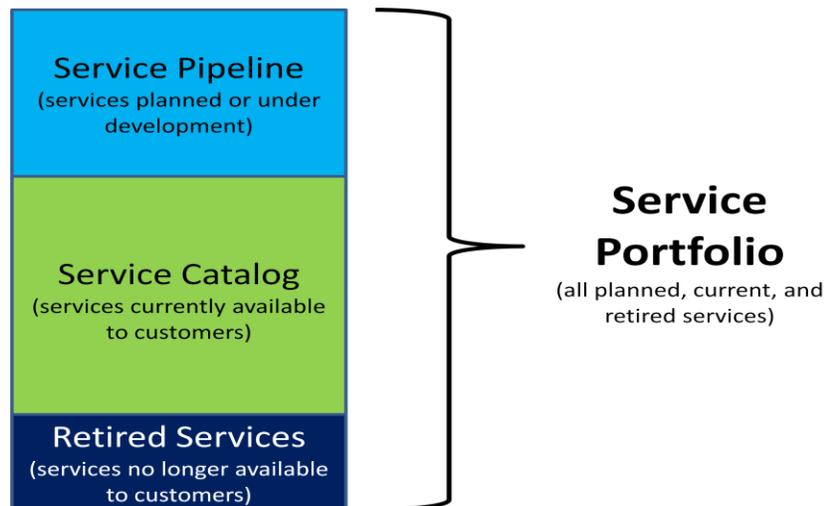
The Service Portfolio

The **Service Portfolio** is the entire set of services under management by a Service Provider. It consists of three major parts: **Service Pipeline**, **Service Catalog**, and **Retired Services**.

Services in the **Service Portfolio** may be:

- Under consideration
- In design
- In development
- In testing
- In operation

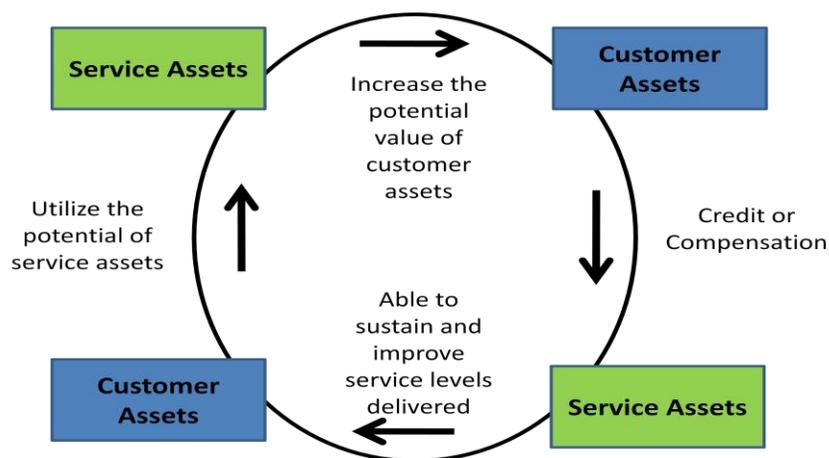
- Retired



The purpose of the **Service Portfolio** is to help the **Service Provider** understand how its resources are allocated toward maximizing the value it offers to customers in the form of services.

The Service Belt

In the course of delivering services, **Service Provider** assets are engaged with customer assets as a means of increasing the performance of customer assets. This causes customer demand for services. Customers express that demand by purchasing services which in turn transfers resources to the Service Provider. The Service Provider uses payment to replace or augment assets it uses to provide the services. This cycle is known as the **Service Belt**.



Processes

Service Strategy

The **Service Strategy** process (yes, it has the same name as the lifecycle phase!) is concerned with the **development of service concepts in preparation for selection of services to be provided**. It consists of four major activities:

1. **Understand the market**
 - a. Who is the customer?
 - b. What do they value?
 - c. How do they define value?
2. **Develop the offerings**
 - a. What service offerings would provide value to customers as defined above?
 - b. How can we as a service provider offer unique or distinctive value?
3. **Develop strategic assets**
 - a. What resources would be required to offer the services identified?
 - b. What capabilities would be need to offer the services identified?
4. **Prepare for execution**
 - a. How can we prepare to build or develop the service?
 - b. What are our specific objectives for the service?
 - c. What specific critical success factors must we meet in order to achieve those objectives?

Service Portfolio Management

The **Service Portfolio Management** process is concerned with **management of the information concerning services in the Service Portfolio**. **Service Portfolio Management** organizes the process by which services are identified, described, evaluated, selected, and chartered.

Demand Management

The **Demand Management** process is concerned with **understanding and influencing customer demand**. Unmanaged demand is a source of both cost and risk to **Service Providers**.

Demand Management models demand in terms of:

- **User Profiles** which characterize different typical groups of users for a given service.
- **Patterns of Business Activity** which represent the way that users in different user profiles access a service over the course of a given time period.



IT Financial Management

IT Financial Management provides a means of **understanding and managing costs** and opportunities associated with services in financial terms. At a minimum, **IT Financial Management** provides a clear means of generating data useful for **decision support** around the management of services.

IT Financial Management includes three basic activities:

- **Accounting** -- tracking how money is actually spent by a **Service Provider**
- **Budgeting** – planning how money will be spent by a **Service Provider**
- **Charging** – securing payment from customers for services provided

Service Design

Overview

The **Service Design** lifecycle phase is about the design of services and all supporting elements for introduction into the live environment.

Business Value

Service Design offers value by:

- Ensuring that services are aligned with business objectives
- Ensuring that services are able to provide the utility and warranty required for them to meet the objectives outlined during **Service Strategy**
- Ensuring that service management systems and tools are capable of supporting service offerings
- Ensuring that service-e management processes are capable of supporting service offerings
- Ensuring that services are constructed according to agreed architectural standards
- Ensuring that services are designed so as to be implemented efficiently
- Ensuring that services are designed so that their performance can be measured

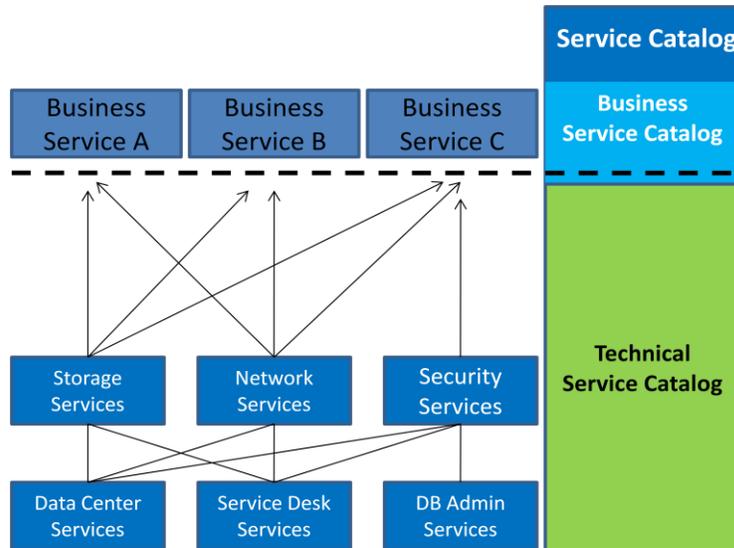
Concepts and Models

Quality Must Be Built-In

ITIL® stresses the importance of purposefully building quality into IT services, processes, and other aspects of the **Service Management** effort. The **Service Design** lifecycle phase is structured to support this emphasis by including processes for clear specification of quality targets (**Service Level Management**) followed by processes for achieving the major **warranty** ingredients of quality: Availability, Capacity, IT Service Continuity, and Security Management. Targeting quality during **Service Design** ensures that quality can be delivered during **Service Operations**.

The Service Catalog

The **Service Catalog** is the subset of the **Service Portfolio** which contains services currently available to customers and users. The **Service Catalog** is often the only portion of the **Service Portfolio** visible to customers. Typically the **Service Catalog** is implemented as a database and is often web-accessible. The **Service Catalog** commonly acts as the entry portal for all information regarding services in the live environment.



The Four P's of Service Design

The 'Four P's of Service Design' represent areas which should be taken into consideration when designing a service. They are:

1. **People** – Human resources and organizational structures required to support the service
2. **Processes** – Service Management Processes required to support the service
3. **Products** – Technology and other infrastructure required to support the service
4. **Partners** – Third parties which provide services required to support the service

The Five Aspects of Service Design

The 'Five Aspects of Service Design' are areas which should also receive design focus as part of the overall effort design a service. The areas include:

1. The new or changed service itself – with special attention to service requirements
2. Service Management processes required to support the service
3. Service Management systems and tools required to support the service (especially the Service Portfolio)
4. Technology Architectures used or referenced by the service
5. Measurement systems and metrics necessary to understand the performance of the service

Service Design Processes

Service Catalog Management

Service Catalog Management involves management and control of the **Service Catalog** which contains information about services currently available to customers for use. Typically such information includes:

- Features of the service
- Guidelines for appropriate use of the service
- Means of accessing the service
- Pricing information (where relevant)
- Key contact information
- **Service Level Agreement** information

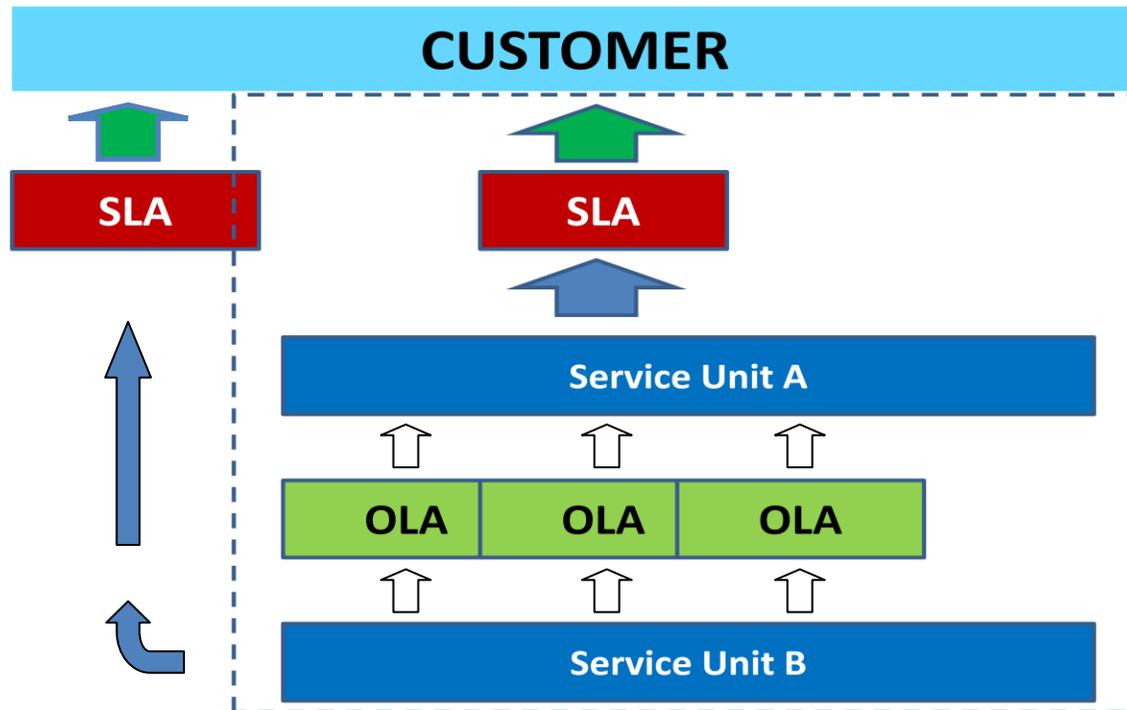
The Service Catalog Management process is included within the Service Design lifecycle phase primarily because design activity typically generates a large volume of documentation and information which should be included in the Service Catalog. Associating management of the Service Catalog with Service Design makes a good deal of practical sense as it provides a means of capturing and organizing relevant information about services early on in their lifecycle.

Service Level Management

Service Level Management is the process charged with securing and managing agreements between customers and the service provider regarding the levels of performance (utility) and levels of reliability (warranty) associated with specific services. **Service Level Management** is part of the **Service Design** lifecycle phase primarily because it provides an opportunity to establish performance requirements early on so that design work may be specifically directed to meet such requirements.

Service Level Management results in the creation of **Service Level Agreements** (SLAs) between customers and the provider.

Operational Level Agreements (OLA's) are performance agreements nearly identical in nature to SLAs except that they exist between parts of the service provider organization specifically for the purpose of supporting 'upstream' SLAs which require dependable performance by multiple business units, functions, or teams within the service provider organization.



Availability Management

The **Availability Management** process is concerned with management and achievement of agreed availability requirements as established in Service Level Agreements. In ITIL®, availability is defined as **the ability of a system, service, or configuration item to perform its function when required.**

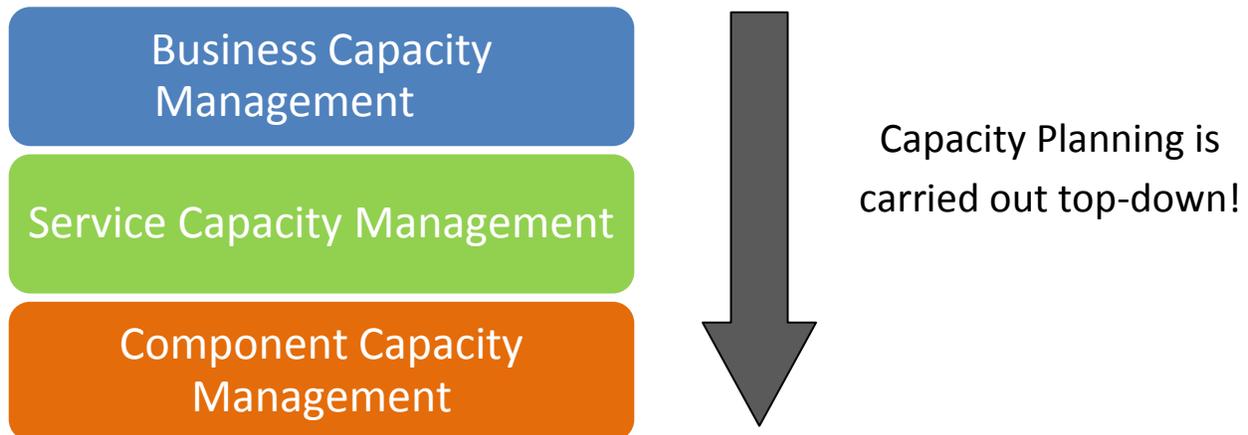
Among other things, **Availability Management** may assist with:

- Development of availability **Service Level Targets** which make up part of an overall **Service Level Agreement**
- Design of services capable of meeting or exceeding agreed availability requirements
- Measurement and monitoring of availability achievements
- Responses to availability-related incidents

Capacity Management

Capacity Management is concerned with ensuring that cost-effective capacity exists at all times which meets or exceeds the agreed needs of the business as established in Service Level Agreements. In ITIL®, capacity is defined as **the maximum throughput a service, system, or device can handle.**

ITIL®'s treatment of **Capacity Management** is divided into three major activities:



Business Capacity Management (BCM) addresses capacity factors which exist primarily at the business level such as mergers, acquisitions, plans for new facilities, reductions in force, etc. Typically, BCM factors are addressed first in the overall Capacity Management effort.

Service Capacity Management (SCM) addresses capacity factors at the service level. Business capacity factors in turn drive Service capacity requirements. The primary task of **Service Capacity Management** is to translate business capacity factors into capacity requirements for services.

Component Capacity Management (CCM) addresses capacity factors at the level of components or **Configuration Items**. The primary task of **CCM** is to translate **Service Capacity Management** factors into capacity requirements for individual components or **Configuration Items**.

IT Service Continuity Management

The **IT Service Continuity Management process (ITSCM)** is responsible for ensuring that the IT Service Provider can always provide minimum agreed Service Levels. **ITSCM** is largely concerned with management of risks and with planning for the recovery of IT Services in the event of disaster. **IT Service Continuity Management** uses techniques such as **Business Impact Analysis (BIA)** and **Management of Risk (MOR)** and is driven by the larger Business Continuity Management effort. **ITSCM** results in the production of the **IT Service Continuity Plan** which is an aspect of the overall **Business Continuity Plan**.

IT Security Management

IT Security Management is the process concerned with the protection of IT assets (including services) from security threats. **IT Security Management** is driven the larger security management efforts and policies of the organization. **IT Security Management** is charged development and management of the **IT Security Policy** which is executed and implemented as a part of the **Access Management** process in **Service Operations**.

IT Security Management focuses on protection of five basic qualities of information assets:

- **Confidentiality** – Assurance that the asset is only available to appropriate parties
- **Integrity** -- Assurance that the asset has not been modified by unauthorized parties
- **Availability** -- Assurance that that asset may be utilized when required
- **Authenticity** -- Assurance that transactions and the identities of parties to transactions are genuine
- **Non-Repudiation** -- Assurance that transactions, once completed, may not be reversed without approval

Supplier Management

Supplier Management is the process charged with **obtaining value for money from third-party suppliers**. **Supplier Management** plays a very similar role to that of Service Level Management, but with respect to external suppliers rather than internal suppliers and internal/external customers. **Supplier Management** is critical to effective design because for nearly all IT organizations, dependency on external suppliers is increasingly central to their ability to deliver services to their own customers.

Supplier Management handles supplier evaluation, contract negotiations, performance reviews, renewals and terminations.

Service Transition

Overview

Service Transition is concerned with management of change and, more specifically, with the introduction of new and changed services into the live environment.

Business Value

Service Transition provides value to the business by:

- Enabling business change
- Minimizing impact to the business which might otherwise result from unmanaged change
- Enabling the business to make use of new and changed services
- Ensuring that designs for services are implemented as intended
- Ensuring that the Service Management organization is prepared to support new and changed services
- Reducing the number of defects introduced into the live environment

Concepts and Models

Service V-Model

The **Service V-Model** defines progressive levels activity and corresponding levels of testing/valid toward a define objective such as a release or major change. Testing at each level prior to moving to the next level helps progressively reduce risk.



Change

ITIL® defines a **change** as the addition, removal, or modification of anything that could have an effect on an IT **service**. All changes involve risk.

Request for Change

A **Request for Change** or **RFC** is a documented request to alter a service or other **Configuration Item**. **RFCs** may be issued by any one: customers, IT staff, users, etc. and are received by the **Service Desk** and handled via the **Change Management** process.

Change Types

- **Normal Changes** are changes which meet predefined criteria that qualify them for handling via the **Normal Change Management** process.
- **Standard Changes** are changes which are **pre-approved** for implementation. Generally, **Standard Changes** are low risk and occur frequently in the environment. Examples might include such things as:
 - Password resets
 - New hire procedures
 - Office moves
- **Emergency Changes** are changes which meet predefined criteria that qualify them for handling via the **Emergency Change Management** process. In most environments, **Emergency Changes** are those which cannot be foreseen and which unless addressed quickly put the environment at high risk of impact. **Emergency Changes** are reviewed by the **Emergency Change Advisory Board (ECAB)**.

Change Authority

In ITIL® the entity charged with approval of a **Request for Change** is called the **Change Authority**. In most environments, the identity of the **Change Authority** varies with the type of change under consideration. For many ordinary changes, the **Change Manager** may act as the **Change Authority**. However, for extremely large changes, the **Change Authority** may be an executive or even the board of directors.

Change Advisory Board

The **Change Advisory Board** or **CAB** is a group of experts convened by the **Change Manager** to advise on the approval/rejection and planning for a specific change. The membership of the CAB usually varies with the change under consideration.

Emergency Change Advisory Board

The **Emergency Change Advisory Board** or **ECAB** is a special group convened by the **Change Manager** to advise on the approval/rejection and planning for **Emergency Changes** as part of the **Emergency Change Management Process**. The membership of the **ECAB** usually includes persons with the experience and

organizational authority required to make rapid and often difficult decisions and to accept the consequences of those decisions.

Change Model

A **Change Model** is a template or pre-defined set of steps, procedures, and guidelines for execution a specific type of change. **Change Models** are used to help minimize risk, save costs, and improve the consistency of execution around changes.

Release

A **release** is a collection of changes which must be implemented together in order accomplish a specific objective or set of objectives.

Release Unit

A **Release Unit** is the particular set of configuration items released together for a specific deployment effort. The **Release Unit** for a **release** is selected as part of the **Release and Deployment Management** process based upon both technical and business criteria. For example, for the deployment of an accounting package the **release unit** might be determined to be the accounts payable and payroll modules, but not the tax computation module.

Baseline

In the context of **Service Transition** generally and, more specifically, in the context of the **Service Asset and Configuration Management** process, the term **Baseline** refers to the documented and validated configuration of a component, system, service, etc. **Baselines** are used within **Service Asset and Configuration Management** to provide a roll-back point useful in managing risk around changes in the environment.

Configuration Management System (CMS)

The **Configuration Management System** is the controlled repository and interfaces for management of information concerning items under configuration control (**Configuration Items**) in the environment. The purpose of the CMS is to provide accurate and up-to-date information regarding how the environment is configured. The **CMS** stores records of **Configuration Items** in the **Configuration Management Database (CMDB)**. Importantly, the **CMS/CMDB** differs from a traditional asset database in that it also provides information regarding how **Configuration Items** are related to each other.

Configuration Item (CI)

A **Configuration Item** or **CI** is anything which has significance for the delivery of an IT Service. **Configuration Items** can include hardware and software, but also documentation, process definitions, facilities, etc. **Configuration Items** are tracked using the **Configuration Management System** which stores records of them in the **Configuration Management Database (CMDB)**. At a bare minimum, the record of a **Configuration Item** should include a unique identifier and the location of the CI.

Service Transition Processes

Change Management

Change Management is concerned with recording, evaluating, approving, testing, and reviewing changes to services, systems, and other **Configuration Items**.

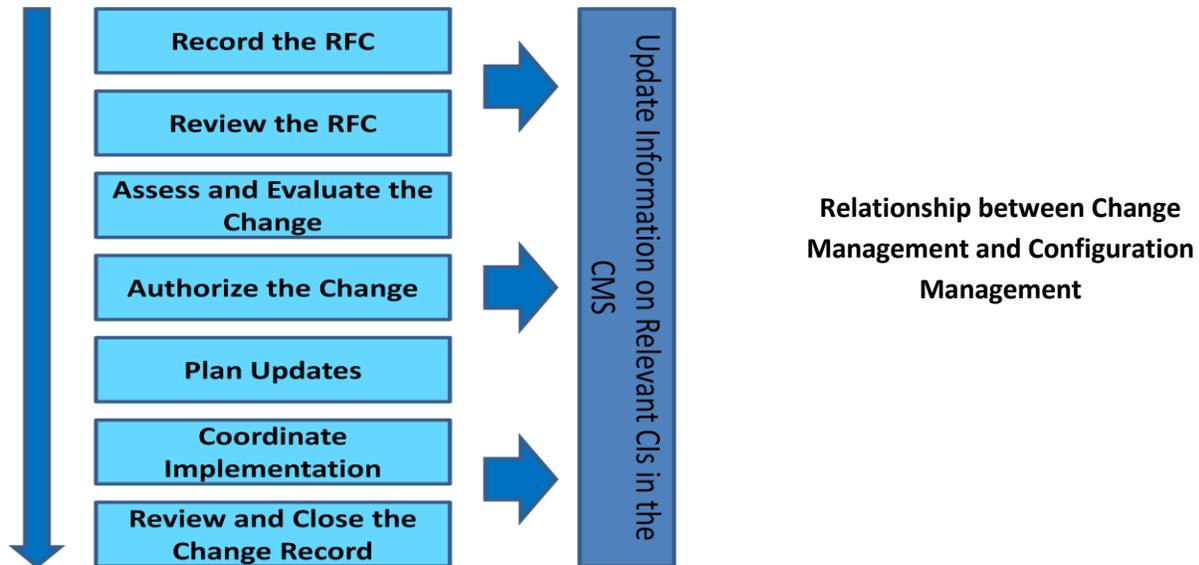
ITIL® reminds us that all changes involve risk. As such **Change Management** is largely concerned with managing risk associated with change. The major activities which make up the Change Management process include:

- **Recording of RFCs** involves logging of the RFC in the Change Management system. Recording must include all details required to assess the RFC.
- **Review of RFCs** involves checking to see if the RFC is complete and free of obvious defects which would make it impractical or impossible to implement.
- **Assessment and Evaluation of RFCs** involves further review and consideration of the RFC, usually by the Change Advisory Board, for the purpose of determining the desirability and feasibility of the requested change.
- **Authorization of RFCs** involves identification of the appropriate Change Authority and the determination by the Change Authority to approve or deny the RFC.
- **Planning** involves identification and scheduling of the activities required to implement the change, including any testing which may be required to manage risk associated with the change.
- **Implementation Coordination**
- **Review and Closure**

Service Asset and Configuration Management

Service Asset and Configuration Management

- Planning
- Identification
- Control
- Status Accounting
- Verification and Audit



Release and Deployment Management

Minor Service Transition Processes

Four additional **Service Transition** processes are included within ITIL®, but are not covered in detail on the Foundation exam. For exam purposes, candidates are only required to recognize that the processes exist within the **Service Transition** lifecycle phase and to understand that in many environments the processes provide additional support for the three primary **Service Transition** processes described earlier.

Transition Planning and Support

Transition Planning and Support provides broader support for large-scale transitions and releases and would be helpful for an organization anticipating an unusual volume of change, as for example would be the case during a merger or acquisition scenario.

Service Validation and Testing

Service Validation and Testing provides separate and more focused support for testing prior to release. Organizations for which quality and error control are of paramount importance might especially benefit from implementation of Service Validation and Testing as a separate process. In such a scenario, Release and Deployment Management would focus more exclusively on deployment/release logistics and testing would become the domain of the new process.



Evaluation

Evaluation provides support for post-release evaluation and confirmation of customer acceptance of new and changed services. It would be useful in situations characterized by customer satisfaction challenges and in situations where other factors might require closer management of customer acceptance.

Knowledge Management

Knowledge Management provides support for the capture and effective publishing of knowledge which surfaces during the Service Transition lifecycle phase and elsewhere. From a practical perspective, **Knowledge Management** belongs in **Service Transition** simply because Service Transition has responsibility for most testing and validation where the most valuable operational data is gathered prior to release into the live environment.

Service Operation

Overview

The Service Operation phase of the Service Lifecycle is concerned with ensuring that services operate within agreed parameters. When service interruptions do occur, Service Operation is charged with restoring service as quickly as possible and with minimizing the impact to the business.

Business Value

Service Operation is the only lifecycle phase in which value is actually realized by customers. Whereas all other phases of the **Service Lifecycle** contribute to and enable value, it is only experienced during **Service Operation**.

Service Operation also adds business value by:

- Ensuring that services are operated within expected performance parameters
- Restoring services quickly in the event of service interruption
- Minimizing impact to the business in the event of service interruption
- Providing a focal point for communication between users and the Service Provider organization

Concepts and Models

Balance

Because **Service Operation** is the first lifecycle phase in which the Service Provider organization must respond to rather than plan for and drive user and customer demand, **balance** is difficult to maintain. Accordingly, ITIL® emphasizes the importance of striving to achieve and maintain **balance** during **Service Operation** in the form of specific balances between:

- Reactive and Proactive Focus
- Internal and External Focus
- Cost and Quality
- Stability and Flexibility

Communication

During **Service Operation**, the importance and criticality of **communication** is especially acute. ITIL stresses the importance of communication:

- Between users and the IT Service Provider
- Between customers and the IT Service Provider
- Between different processes, functions, teams, etc. within the IT Service Provider
- Between the IT Service Provider and its suppliers

Incident

An **incident** is any occurrence which causes *or may cause* interruption or degradation to an IT Service.

Problem

A **problem** is the unknown underlying cause of one or more incidents. A problem is NOT just a particularly serious incident.

Error

An **error** is the known underlying cause of one or more incidents.

Known Error

A **known error** is the known cause of an incident for which a workaround also exists.

Event

An event is any change of state of an infrastructure or other item which has significance for the delivery of a service.

Service Operation Processes

Incident Management

Incident Management is concerned with the rapid restoration of services and with minimization of impact to the business. In most but not all cases the **Incident Management** process is owned and executed by the **Service Desk**.

Within ITIL®, Incident Management consists of a number of basic activities or steps:

- **Detection** – The incident becomes known by any mechanism, e.g. user call, system alert, etc.
- **Logging** – Details of the incident are recorded in the incident management system.
- **Classification** – The incident is categorized according to predefined criteria for the purpose of facilitating diagnosis and prioritizing its handling relative to other incidents.
- **Prioritization** – The *impact* and *urgency* of the incident are determined and factored together to determine its relative priority among other incidents.
- **Investigation and Initial Diagnosis** – Additional details regarding the incident are gathered and used along with tools such as the Known Error Database to attempt resolution.
- **Escalation** – If necessary, the incident may be forwarded to the appropriate handling group.
- **Resolution and Recovery** – Service is restored and users are provided assistance to allow them to resume work.
- **Closure** – Successful resolution of the incident is verified with the user, the incident resolution details are recorded, and the incident is flagged as being closed in the incident management system.

Problem Management

Problem Management is concerned with the identification and correction of flaws or errors in the environment which cause incidents. **Problem Management** helps reduce and prevent incidents.

Problem Management is broadly divided into two major sub-processes:

- **Reactive Problem Management**, which is charged with responding to problems as they arise in the environment, usually driven by the Incident Management process.
- **Proactive Problem Management**, which is charged with proactively seeking out improvements to services and infrastructure before incidents occur.

Problem Management uses techniques such as Kepner-Tregoe, Ishikawa diagramming, and Fault Tree Analysis to identify the root cause of incidents. Once the root cause of an incident is determined, **Problem Management** may issue a **Request For Change** to initiate action toward implementation of a permanent fix for the underlying cause or, if a permanent solution is not feasible, may assist in the development of a **Work Around** for use in restoring service and minimizing the impact of associated incidents.

The production and maintenance of the **Known Error Database (KEDB)** is one of the most important outputs of the **Problem Management** process. The **Known Error Database** is used by the Incident Management process to more rapidly resolve incidents.

Event Management

Event Management is concerned with detection of events in the infrastructure and with selection of appropriate response actions. By facilitating early detection of incidents, Event Management helps reduce the number of incidents which impact users and can greatly improve the performance of the Incident Management process itself.

As described earlier, an **Event** is any change of state which has significance for the delivery of a service. As such, **Event Management** mainly focuses on IT detecting and addressing issues at the infrastructure level and is most commonly a largely automated process.

Events may be one of three basic types:

- **Informational** – No action is required. The event information is logged for potential future reference.
- **Warning** --An infrastructure item is approaching a predefined performance or capacity threshold which could cause an incident or require intervention.
- **Exception**—An infrastructure item has exceeded a threshold or is no longer operating within defined parameters. Intervention is required.

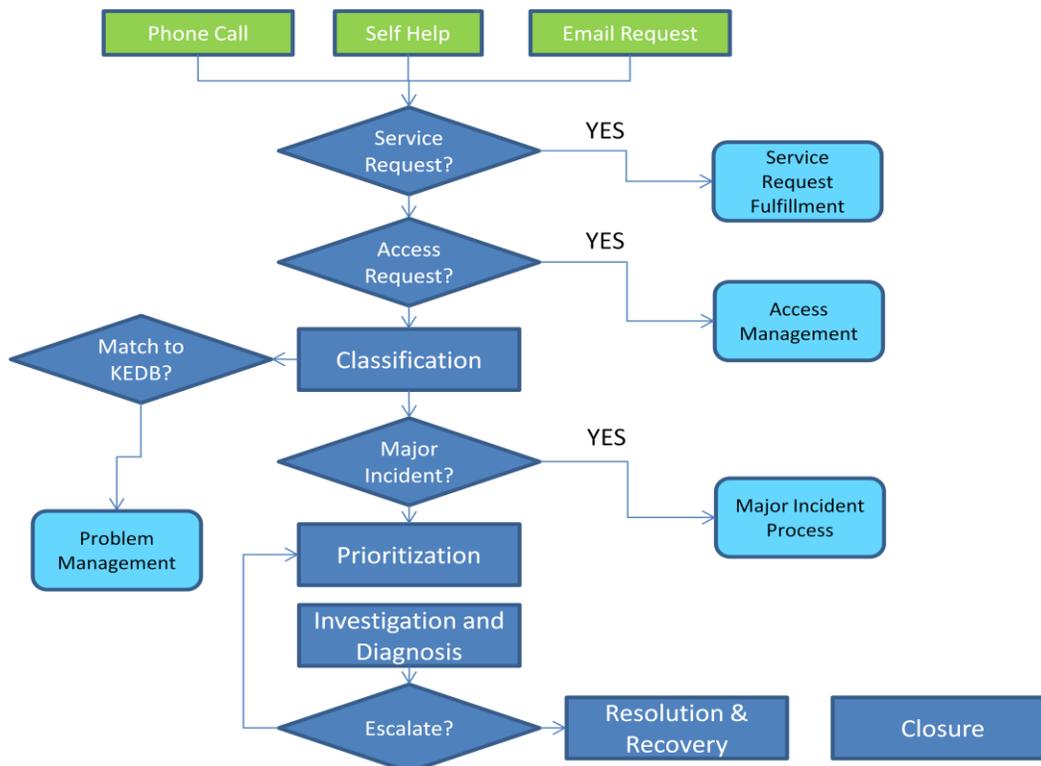
Service Request Fulfillment

Service Request Fulfillment is the process charged with assisting users in situations where no service degradation or interruption is involved. **Service Request Fulfillment** provides a means of addressing common user requests for non-incident support, new equipment, training, etc. **Service Request Fulfillment** frequently makes use of **Standard Changes** and automation to meet user requests more efficiently.

In much the same way that **Event Management** supports the **Incident Management** process by addressing incidents before they impact users, Service Request Fulfillment can reduce the load on the **Incident Management** process by providing a means of addressing non-incident related requests before they enter the **Incident Management** stream.

Access Management

The **Access Management** process is charged with providing authorized parties with appropriate access to service and information as specified in the **Information Security Policy**. **Access Management** executes the **Information Security Policy** as defined by the **Information Security Management** process, but does not itself set policy.



Integration Between Service Operation Processes

Continual Service Improvement

Overview

Continual Service Improvement is about the alignment and re-alignment of services, processes, functions, etc. with changing business needs. It is also concerned with the consistent application of quality management methods to the overall **Service Management** effort.

Business Value

Continual Service Improvement offers value to **Service Provider** and customer organizations by:

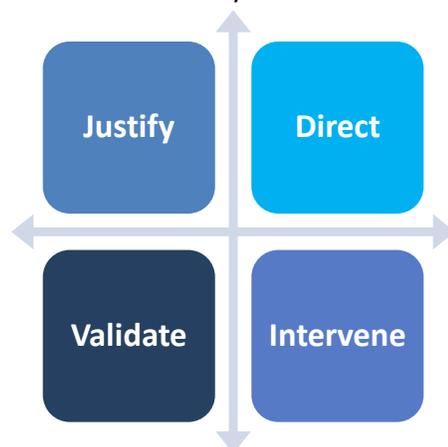
- Ensuring that services, processes, and other aspects of the **Service Management** effort are aligned with business objectives
- Ensuring that services meet agreed levels of performance
- Ensuring that the efficiency (cost) of service delivery improves steadily
- Ensuring that all aspects of the **Service Management** effort undergo regular and consistent reviews

Concepts and Models

The Role of Measurement

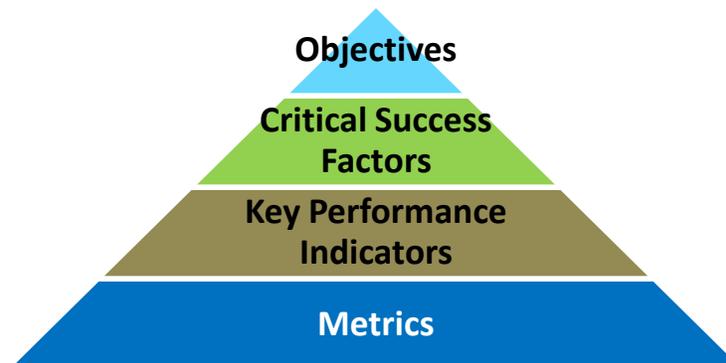
Measurement plays a critical role within ITIL®, both as a part of **Continual Service Improvement**, but also within **Service Level Management** and as an essential part of all processes. Measurements can be used for four basic purposes as shown below:

- To **JUSTIFY** a proposed course of action
- To **DIRECT** activity
- To **INTERVENE** when corrective action is required
- To **VALIDATE** actions which have already been taken



Objectives, CSFs, KPIs, Metrics, and Measurements

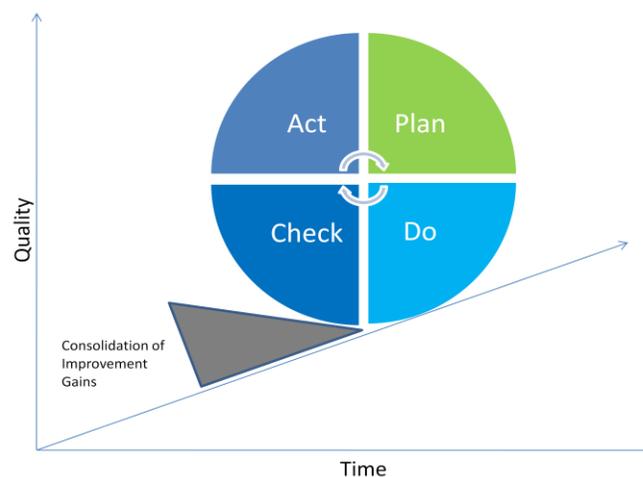
Measurements are the end result of a hierarchy of activities which link measurements to business objectives as shown in the illustration below.



- **Objectives** establish the reason for measurement. Measurement in itself has no value. Rather, it only has value inasmuch as it supports achievement of specific objectives.
- **Critical Success Factors** define specific things that must happen if objectives are to be achieved.
- **Key Performance Indicators** are metrics which specifically indicate progress or performance around or toward Critical Success Factors.
- **Metrics** are the definitions of what will be measured and how it will be measured.
- **Measurements** are the actual readings taken based upon a specific metric.

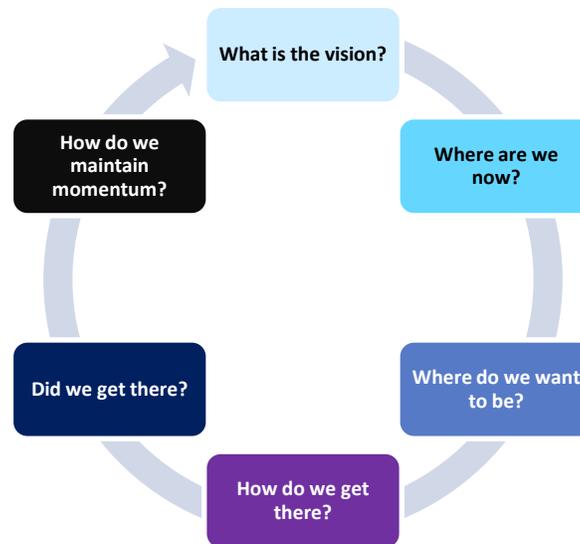
The Deming Cycle

The **Deming Cycle** is an improvement model originally created by W. Edwards Deming and used to great success in the Japanese auto industry. It consists of four simple steps (**Plan, Do, Check, Act**) as show in the figure below.



The Continual Service Improvement Model

The **Continual Service Improvement Model** is a simple set of guiding questions which can be used to organize and perpetuate an improvement program. It closely mirrors the basic approach also used in the **ITIL® 7-Step Improvement Process**.



Service Improvement Plan (SIP)

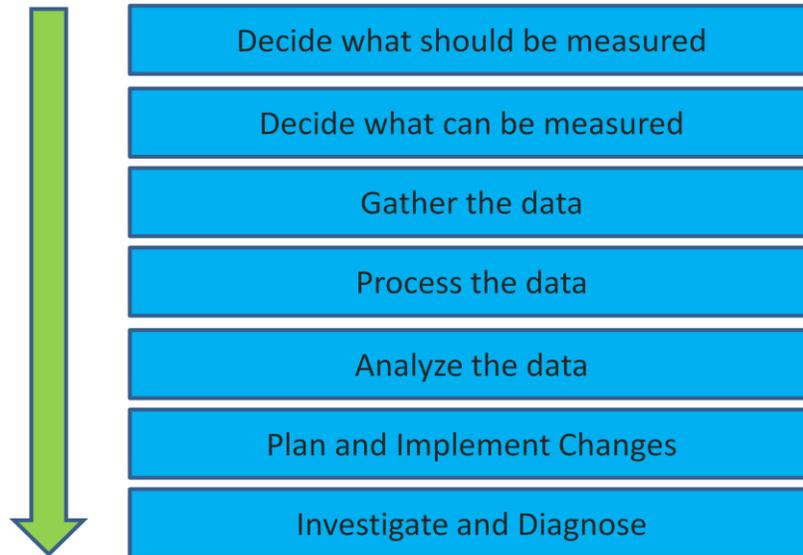
A **Service Improvement Plan** or **Service Improvement Program** is the primary output of periodic service reviews carried out as part of **Continual Service Improvement** or as part of the **Service Level Management** process. The **SIP** maps specific improvement objectives for an identified time period between one service review and the next.

Continual Service Improvement Processes

The Seven Step Improvement Process

The **Seven Step Improvement Process** provides a simple means of using measurement to guide the improvement and correction of service performance. The steps are:

- Decide what should be measured
- Decide what can be measured
- Gather the data
- Process the data
- Analyze the data
- Present and use the data
- Implement corrective action



Service Level Management

Although **Service Level Management** is one of the processes within the **Service Design** lifecycle phase, it shares many activities and objectives with **Continual Service Improvement**. In particular, both **Service Level Management** and **Continual Service Improvement** emphasize regular measurement and review of services and other aspects of the **Service Management** effort.

Technology and Architecture

The Role of Automation

ITIL® introduces the concept of ‘bounded rationality’ in its discussion of the role of automation in IT Service Management. ‘Bounded rationality’ refers to the limits which constrain humans’ ability to entertain more than a few factors at a time when seeking to make decisions in complex situations.

In the most fundamental sense, automation and technology play an important role in IT Service Management by helping human decision makers effectively confront vastly more complex scenarios than they might otherwise be able to. Some examples include:

- Use of automation to identify patterns and trends in large data sets such as event logs, incident logs, etc.
- Use of automation to help guarantee consistency during design efforts

- Use of automation to accurately record high volumes of detailed data, e.g. incident logs
- Use of automation to avoid arbitrary assignment of priority to incidents, problems, changes, etc.
- Use of automation to respond to events in real time

ITIL® urges the point that **all** phases of the Service Lifecycle can be supported very effectively using technology and automation.

Automation Tips

ITIL® offers some discussion of how automation can best be used to support processes. It's most essential recommendations include:

- Process definition should precede attempts to purchase or apply technology to processes
- Processes should be simplified prior to automating them

Information Systems Discussed Within ITIL®

ITIL® describes a number of information systems which represent the application of technology/automation to the IT Service Management effort. The most important of these include:

- Service Knowledge Management System (SKMS)
- Service Portfolio/Catalog
- Availability Management Information System (AMIS)
- Configuration Management System/Configuration Management Database (CMS/CMDB)
Capacity Database (CDB) or Capacity Management Information System (CMIS)
- Known Error Database (KEDB)
- Security Management Information System (SMIS)

