

# ITIL FOUNDATION EXAM



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**ITIL® FOUNDATION EXAM STUDY GUIDE**

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**All the questions sent to the email are answered within 48 business hours.**

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### **About the ITIL exams:**

The ITIL Foundation examination contains 40 multiple choices questions where one option out of 4 possible answers given has to be selected.

- One mark is given for a correct answer and no marks are deducted for a wrong answer.
- You will have one hour to complete the exam where you need to score at least 26 out of 40 to become ITIL foundation certified.
- Read the question thoroughly. You will have an average of 1.5 minutes per question. Answer the easy ones first and move on to the next question if you do not know an answer.

The exam format is as follows:

- ✓ 40 questions with 1 mark available per question.
- ✓ Multiple choice.
- ✓ 26 marks required to pass - 65%.
- ✓ 1 hour duration.
- ✓ Closed book and computer based testing.

There are no trick questions. The questions are often precisely phrased.

- ✓ Be cautious of answers using terms like “ALWAYS”, “NEVER” or “NOT”.
- ✓ Many questions contain at least one distracter. Use the process of elimination to remove wrong answers from the list and then focus on the remaining answers.
- ✓ Please make sure you answer questions based upon your ITIL knowledge and not on your experience in the real world.
- ✓ EXIN organization establish educational requirements, and organize exams in IT, including ITIL and other exams. EXIN exams are available in 11 languages. EXIN certifies ITIL-professionals for ITIL foundation, ITIL service managers all over the world.

You can find more information @ [www.exin-exams.com](http://www.exin-exams.com)

### **Foundation Certificate**

The Foundation Certificate enables people to understand the terminology used within ITIL®. It tests foundational knowledge with regard to the ITIL Service Lifecycle.

### **Pre-requisites for taking ITIL® exams**

There are no formal requirements for the course or examination, but it is assumed candidates must have a basic level of IT knowledge. The course will be suitable for staff in IT environments, project managers, project leads, programmers, and those who have day-to-day responsibilities related to the IT environment.

**What does having ITIL® certification mean:**

The holder of the foundation certificate in IT service management should be aware of all the techniques across the range of service delivery and service support activities. They should be able to relate the activities to each other and should be competent to participate in service delivery/support functions.

**What languages are the ITIL® exams available in?**

The foundation exams are available in English, French, German, Chinese, Japanese, Portuguese, Russian, and Spanish languages. The practitioner examinations are available in English only.

**How long do I need to wait for the results of ITIL® foundation examination?**

Results are declared immediately after submitting the exam online.

**How does a candidate receive the certificate of an EXIN examination?**

After finalizing the exam and seeing your results, the certificates will be sent to you in mail by EXIN.

**How can I retake the examination if I fail? And how many times can I take the examination?**

In the event of a failed exam, you may take part in another examination. To retake the foundation examination, you could come back to the prometric center again. There is no limit to the number of times you can take the examination. Generally the overall pass rate of ITIL® examination varies around 85%.

**I earned my foundation certificate a few years ago. Do I need to update this certification?**

Once you pass the exam, your foundation certificate is valid indefinitely.

## **What is prometric and what is its role?**

EXIN ITIL® foundation examination is one of the exams available in the Prometric Authorized Testing Centers.

## **Foundation**

The Foundation level focuses on knowledge and comprehension to provide a good base in the key concepts, terminology, and processes of ITIL V3.

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**ITIL INTRODUCTION: A Bird's Eye View:**

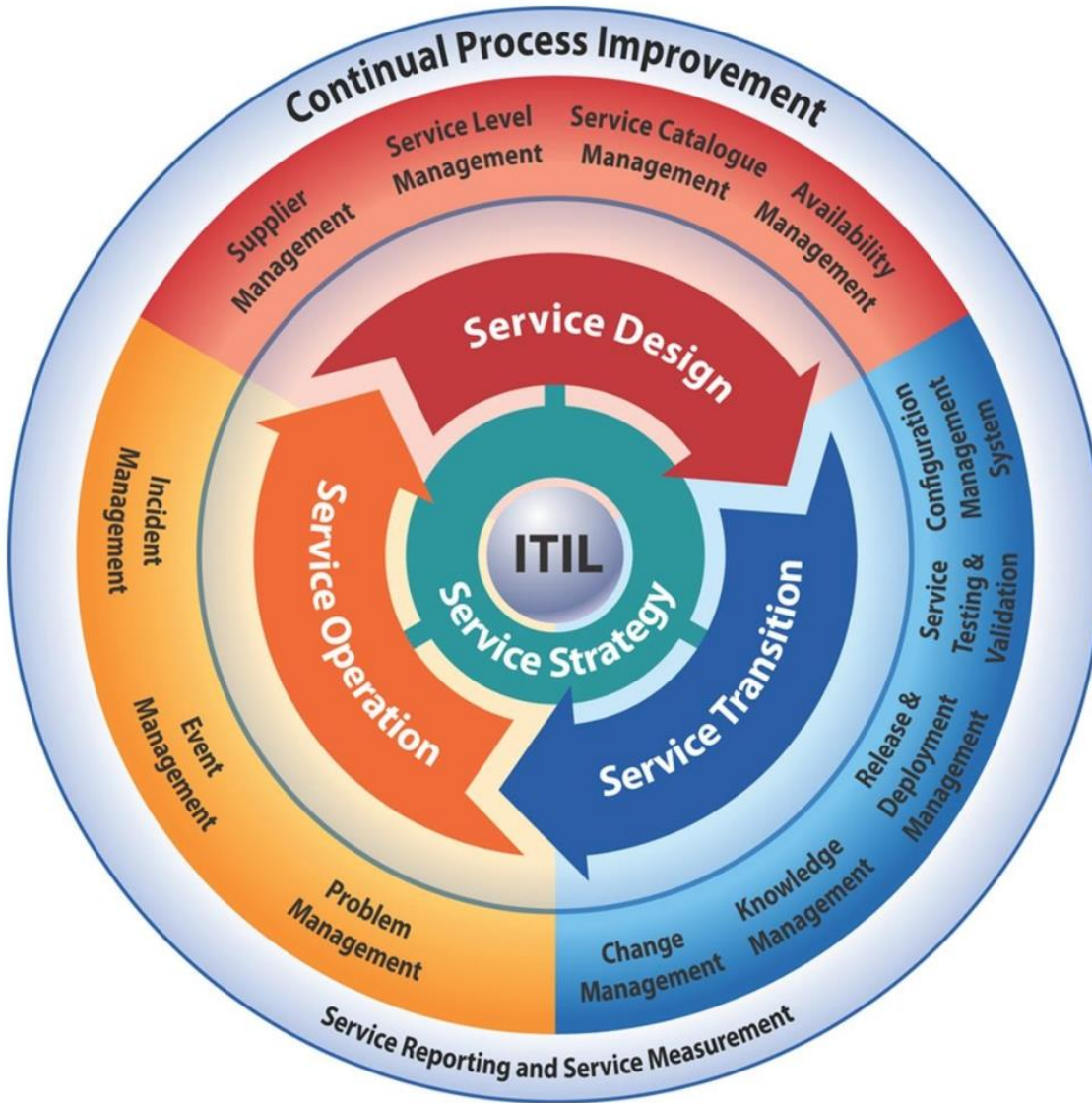
ITIL defines a service as "a means of delivering value to customers by facilitating the outcomes customers want to achieve without the ownership of specific costs and risks." E.g.: services provided by IT service provider to customers.

**ITIL V3 Qualification Scheme:**



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**ITIL Service Lifecycle:**



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## **Service Management:**

Service management is a set of specialized organizational skills for providing value to customers in the form of service delivery.

## **MODULE I. Service management as a practice:**

### **Service Lifecycle:**

Service lifecycle is initiated from a change in requirements. These requirements are identified at service strategy lifecycle. Then it is passed to the service design stage, where a solution for the change is developed. The Service design package is then passed to Service Transition, where the service is tested, and moved to the live environment. In the production environment, service operation focus on the effective operational service and delivers value to customer. CSI identifies opportunities for improvements in all of the 4 stages. ITIL is considered as one of the standards containing the body of knowledge in best practice and is being adapted by organizations worldwide to establish and improve capabilities in service management. ITIL is recognized as a world-wide best-practice approach for delivering IT services and IT service management by focusing on the processes, functions, and capabilities required to support IT services in businesses. It helps organizations to gain competitive advantage by ensuring they are utilizing the best approaches, helping IT services to meet the needs of the customers within the budget in a cost-effective manner.

### **Function:**

Functions are self-contained subsets of an organization intended to accomplish specific tasks.

A function is an organizational entity, characterized by a special area of knowledge or experience. A team or group of people and the tools they use to carry out one or more activities.

E.g. service desk, facility management etc.

### **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.



Processes are activities which produce a defined outcome.

A structured set of activities designed to produce an outcome and provide value to stakeholders. It transforms input into output.

Activities of a process:

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

### **Internal customer:**

A Customer who works for the same Business as the IT Service Provider. Providers within the same business unit are called Internal Service Providers. Eg: For example, the marketing department is an internal customer of the IT organization because it uses IT services.

**External customer:** A customer who works for a different business from the IT service provider. They are people who are not employed by the organization, that are separate legal entities that purchase services from the service provider in terms of a legally binding contract or agreement.

**External Service Provider:** A service provider which functions outside of the organization that can offer competitive prices and lower unit costs.

**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 Model:**

A process model is a description of a process at the type level. The same process model is used repeatedly for the development of many applications and thus, has many instantiations. One possible use of a process model is to prescribe how things must/should/could be done in contrast to the process itself which is really what happens. A process model is roughly an anticipation

of what the process will look like. What the process shall be, will be determined during actual system development.

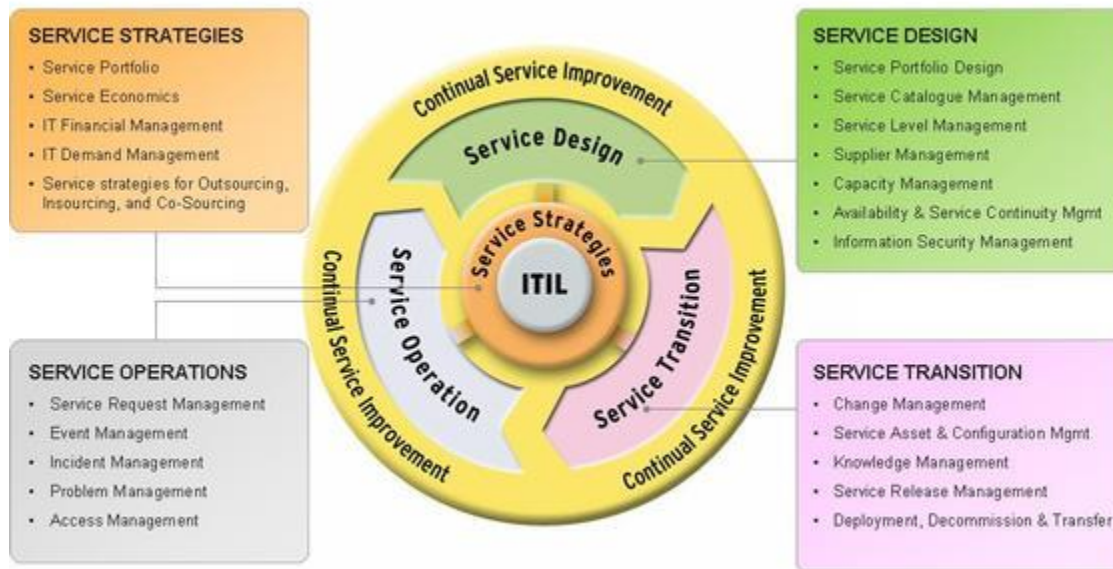
### **Characteristics of the process:**

An ITIL process should also comply with the following rules:

- Well defined metrics have to be enabled in order to measure the process efficiency. The measurement should cover the needs of several kinds of stakeholders. Managers for example will be interested by cost and quality while the practitioners will be more focused on productivity and execution time.
- The method to check the achievement of the expected outcome is clearly identified
- Someone has to ensure the process will meet the customer expectation whether he is internal or external.
- The process should be traceable to specific triggers.
- A process should easily be amended in order to reply to a specific requirement

### **Service Management lifestyle consists of**

- ❖ Service Strategy,
- ❖ Service Design,
- ❖ Service Transition,
- ❖ Service Operation
- ❖ Continuous Service Improvement.



Service management is a set of specialized organizational capabilities, for providing value to customers in the form of service delivery.

Service lifecycle is initiated from a change in requirements. These requirements are identified at service strategy lifecycle. Then it is passed to the service design stage, where a solution for the change is developed.

The Service design package is then passed to Service Transition, where the service is tested, and moved to the live environment. In the production environment, service operations focus on the effective operational service and delivers value to customer.

CSI identifies opportunities for improvements in all of the 4 stages.

ITIL is considered one of the standards containing the body of knowledge in best practice and is being adapted by organizations worldwide to establish and improve capabilities in service management.

ITIL is recognized as a world-wide best-practice approach for delivering IT services and IT service management by focusing on the processes, functions, and capabilities required to support IT services in businesses. It helps organizations to gain a competitive advantage by ensuring they are utilizing the best approaches, helping IT services to meet the needs of the customers within the budget in a cost-effective manner.

**IT Service Management (ITSM):**

IT Service Management is a strategic approach to designing, delivering, managing and improving the way information technology is used within an organization. The goal of IT Service Management is to ensure that the right processes, people and technology are in place so that the organization can meet its business goals. The term IT Service Management is often associated with ITIL framework that provides best practices for aligning IT with business needs. The most widely used framework for IT process management is ITIL. The current version of ITIL incorporates an IT service lifecycle that has five parts: Strategy, Design, Transition, Operations and Continual Service Improvement. It denotes implementation and management of quality IT services that meets the business needs.

ITSM refers to the entirety of activities – directed by policies, organized and structured in processes and supporting procedures that are performed by an organization or part of an organization to plan, deliver, operate and control IT services offered to customers. It is concerned with the implementation of quality IT services that meet the needs of customers, and is performed by the IT service provider through an appropriate mix of people, process and information technology.

IT service management is characterized by

- adopting a process approach towards management
- focusing on IT services rather than IT systems
- continual improvement

**Concept of stakeholders in service management:**

Stakeholders have an interest in the organization, project or service etc. and may be interested in the activities, targets, resources and deliverables from service management.

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

**Customers:**

Those who buy goods or services. The customer of an IT service provider is the person or group who defines and agrees to the service level targets.

**Users:**

Those who use the service on a day-to-day basis.

**Supplier:**

The process charged with obtaining value for money from third-party suppliers. Supplier Management handles supplier evaluation, contract negotiations, performance reviews, renewals and contract terminations. A 3<sup>rd</sup> party responsible for supplying goods or services that are required to deliver IT services.

Responsibility of supplier management development, negotiation, and agreement of contracts.

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

**Internal customer:**

A customer who works for the same business as the IT Service Provider. Providers within the same business unit are called Internal Service Providers. E.g.: For example, the marketing department is an internal customer of the IT organization because it uses IT services.

**External customer:** A customer who works for a different business from the IT service provider. They are people who are not employed by the organization, that are separate legal entities that purchase services from the service provider in terms of a legally binding contract or agreement.

**Service Strategy**

Service Strategy focuses on

1. Creating business cases for investment.
2. Finding out the marketing opportunities for the product.
3. Identifying the existing market competition for the product.
4. Delivering customer value.

To assess the service provider's capabilities, competitors, as well as market spaces, to develop a strategy to serve customers. Once the strategy has been defined, Strategy Management for IT Services is responsible for ensuring the implementation of the strategy.

- Identify and prioritize opportunities.
- Define the principles of developing service management policies and guidelines across the service lifecycle.
- Helps the organization manage the costs and risks.
- Create objectives and expectations of performance towards serving customers.

### **Strategy generation:**

- Select the strategy that delivers value.
- Focus on delivering value to customers.
- Identify the market expectations.
- Develop strategies to fulfill the market gap and capture the market.

Service Strategy provides guidance for the organization to operate and grow successfully, and act in a strategic manner while transforming Service Management capabilities into a strategic asset.

### **Service strategy has 3 processes:**

Service Portfolio Management, IT Financial Management, & Demand management.

### **Service Portfolio Management**

Owned by the service portfolio manager, it contains the below sub-processes:

- ✓ **Service Strategy assessment:** assesses the current situation in the market.
- ✓ **Service strategy definition:** defines the goals of the service, as well as defining customer categories.
- ✓ **Service portfolio update:** adjusts services offered in portfolio.
- ✓ **Strategic planning:** defines and initiates projects required to execute Service Strategy.
- ✓ **Demand Management**

## IT Financial Management

Owned by the financial manager, it is made of four sub-processes:

- ✓ **Financial management support**
- ✓ **Financial planning**
- ✓ **Financial analysis and reporting**
- ✓ **Service invoicing**

**Demand Management:** Used by service providers to achieve the most effective utilization of service assets by influencing how & when demand occurs.

## SERVICE DESIGN

Design services, which can be efficiently maintained, to satisfy business goals.

**4 P's of service Design:** People, process, products, partners. When designing a new service, the 4 P's are taken into consideration throughout the service lifecycle.

**Service Design Package:** An SDP is the document defining all aspects of IT service and its requirements throughout the lifecycle. It is produced for each new IT requirement.

Service design helps to convert strategic objectives into portfolio services and service assets.

## SERVICE DESIGN PROCESSES

The following seven processes are described within Service Design:

- 1. SERVICE LEVEL MANAGEMENT:** SLM is responsible for finding a balance between the customers' needs and expectations, and the costs of associated services such that these are acceptable to both the customer and to the IT organization.



- 2. AVAILABILITY MANAGEMENT:** Availability Management is used for defining, analyzing, planning, measuring, and improving the availability of IT services. This process makes sure that all designed services are available all the time in order to meet the business requirements.
- 3. CAPACITY MANAGEMENT:** The process to ensure that the capacity of IT Services and the IT Infrastructure is able to deliver agreed Service Level Targets in a cost effective and timely manner. Capacity Management considers all resources required to deliver the IT Service, and plans for short, medium, and long term business requirements.
- 4. IT SERVICE CONTINUITY MANAGEMENT:** IT Service Continuity Management is the process that prepares IT Services for recovery and continuation in the case of a major incident. This process takes proactive steps, rather than just reactive steps, so that the impact is minimized. When a disaster occurs, this process ensures that there is a continuance of service without any interruption.
- 5. SERVICE CATALOG MANAGEMENT:** The Service Catalog describes the services that are currently in use, the business processes that are used, and the customer's service quality expectations. Ensures production and maintenance of the Service Catalogue with accurate information on all services and those being prepared to be run.
- 6. SUPPLIER MANAGEMENT:** Supplier Management is the process that manages the relationships between the IT organization and its suppliers. It manages Suppliers, especially 3rd party, although some can be internal suppliers, and services they provide to the client. The goal is to ensure quality, consistency, and value for money.
- 7. INFORMATION SECURITY MANAGEMENT:** Information Security Management is the process that protects information confidentiality, integrity, and availability by creating and enforcing the Information Security Policy. Information Security Management relates to IT Service Continuity Management, since information security will form part of the overall approach for IT service continuity.



**Service Delivery sourcing strategies:**

- Insourcing: using internal resources.
- Outsourcing: using external resources.
- Co-sourcing: A number of organizations working together for the solution.
- BPO (business process outsourcing): one organization takes over the provision of the entire business function on behalf of another.
- KPO (Knowledge Process Outsourcing): Organization provides domain based knowledge services for another organization.
- Multisourcing: 2 or more organizations work together to deliver a service, sharing the benefits.

**Activities of Service Level Management:**

- Produce service reports.
- Monitor service performance against SLA.
- Develop underpinning contracts and relationships.

**SERVICE TRANSITION**

Service Transition is the phase where new or changed services are transitioned into Service Operation. Plan and manage the capacity and resources of the required package; build, test and deploy a release into production.

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

Activities performed within this phase include:

**Service Transition provides value to the business by means of:**

- Enabling business change.
- Reducing the number of defects in the live environment.
- Enabling the business to make use of new and changed services.
- Ensuring that designs for services are implemented as planned.

- Ensuring that the Service Management organization is prepared to support new and changed services.

The following four processes are described within **Service Transition**:

### **CHANGE MANAGEMENT**

Change Management ensures that standard methods are used to manage all changes made to the production environments. It tracks all of the changes made to service management processes, service assets, and configuration items recorded in the Configuration Management System. All changes are done in accordance with standard procedures that minimize risk to the business. During this process, a service provider assesses and evaluates the risks associated with a change and develops a backup plan to follow if it fails, called a back out or rollback procedure.

### **SERVICE ASSET AND CONFIGURATION MANAGEMENT**

Service Asset and Configuration Management (SACM) is composed of both Asset Management and Configuration Management. It aims to maintain information about Configuration Items required to deliver an IT service, including their relationships. It deals with these individual components, their attributes, and their relationships.

### **RELEASE AND DEPLOYMENT MANAGEMENT**

Release and Deployment Management is the process during which service providers move services for release into the live environment. This process includes the building, testing, and delivery of the service in an effort to provide the customer with expected results.

### **KNOWLEDGE MANAGEMENT**

Knowledge Management is the process that service providers use to collect, analyze, and exchange information and knowledge within the organization. A key component of this process is the Service Knowledge Management System (SKMS).

### **Service Transition Outcome:**

- -An updated service portfolio consisting of all new or changed service components.

- -An updated service package that defines the services offered to the customer.

## **SERVICE OPERATAION**

Service Operation is where the value of the services being provided is first realized by the customer. During Service Operation, the day-to-day activities of the processes that manage the services takes place. The main objective is to make sure that IT services are delivered effectively and efficiently. This includes fulfilling user requests, resolving service failures, and fixing problems, as well as carrying out routine operational tasks.

### **4 Functions of Service Operation:**

#### **IT OPERATIONS MANAGEMENT**

The IT Operations Management function is responsible for the daily operational tasks needed to manage the IT infrastructure according to the Performance Standards defined during Service Design.

The aim of IT Operations Management is to monitor and control IT services and IT infrastructure. An IT Operations Manager will be needed to take responsibility for all of the IT Operations Management related activities.

#### **TECHNICAL MANAGEMENT**

The Technical Management function provides detailed technical skills and resources needed to support the ongoing operation of the IT Infrastructure. Technical Management also plays an important role in the design, testing, release, and improvement of IT services and is responsible for the daily operation of the IT infrastructure.

#### **SERVICE DESK**

Service Desk is the primary point of contact for users when there is a service disruption, service request, or some categories of change request. The Service Desk provides a single point of communication between service users and the IT organization.

## **APPLICATION MANAGEMENT**

The Application Management is responsible for managing applications throughout their lifecycle. The Application Management supports and maintains operational applications.

Service Operation adds business value by:

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

## **6 processes are used by the operation functions**

### **EVENT MANAGEMENT**

The process that monitors all events that occur through the IT infrastructure. It allows for normal operation and also detects and escalates exception conditions during service failures.

### **INCIDENT MANAGEMENT**

To manage the lifecycle of all Incidents. The primary objective of Incident Management is to restore the IT service to users as quickly as possible.

### **PROBLEM MANAGEMENT**

To manage the lifecycle of all Problems. The primary objectives of Problem Management are to prevent incidents from happening, and to minimize the impact of incidents that cannot be prevented.

### **REQUEST FULFILLMENT MANAGEMENT**

Request Fulfillment Management is the process that manages service requests received from the users. A service request, is a request that has a standard procedure for response and should be approved by Change Management.

## **ACCESS MANAGEMENT**

To grant authorized users the right to use a service, while preventing access to unauthorized users. The Access Management processes execute policies defined in Information Security Management. Access Management helps to protect the confidentiality, integrity, and availability of assets by ensuring that only authorized users are able to access the assets.

## **APPLICATION LIFECYCLE MANAGEMENT**

During the Application Lifecycle Management process, the service provider is responsible for developing, enhancing, maintaining, and managing applications. This process employs a lifecycle to manage all activities related to the management of applications.

## **Continuous Service Improvement**

Responsible for managing improvements in IT service management processes & IT services. The CSI process aims to continually improve the effectiveness and efficiency of IT processes and services.

Continual Service Improvement is responsible for continually aligning IT services to changing business needs. These improvement activities support the lifecycle approach through Service Strategy, Service Design, Service Transition, and Service Operation. In general, the improvement process is about looking for ways to improve process efficiency and cost effectiveness throughout the entire service lifecycle.

Deming Cycle (Plan, Do, Check, Act) used for quality improvement activities across the organization.

### **Continuous Service Improvement Model:**

- What is the vision?
- Where are we now?
- Where do we want to be?
- How do we get there?
- Did we get there?

### **7 Step Improvement Process:**

The 7-Step Improvement Process follows, in an attempt to determine how to improve services:

- Define what you should measure,
- Define what you can measure,
- Gather the data,
- Process the data,
- Analyze the data,
- Present and use the information,
- Implement corrective action.

### **Service Review**

Service Review process aims to review business services and infrastructure services on a regular basis. The aim of this process is to improve service quality where necessary, and to identify more economical ways of providing a service where possible.

It is part of a continual service improvement. A document containing the results and findings from a Service Review called as service review report.

## **MODULE III.Generic concepts and definitions:**

### **Utility and warranty**

Utility can be called as fitness for purpose. Utility, means that service needs to fulfill customer needs. The utility is what the customer will actually receive and will fit his outcome purpose.

Fit to be called as warranty. It means that the service is available when a user needs it. A WARRANTY is a promise that a product or service is fit for use. The warranty covers how the utility will be delivered in order to fit the outcome use.

**Asset Management:** Covers service assets across the service lifecycle. It provides complete inventory of assets and the responsible people for the control of assets.

Resources and Capabilities are both types of Service Asset.

### **Service Portfolio:**

The Service Portfolio represents the investments made by a service provider

The Service Portfolio represents the ability of a service provider to serve customers and market spaces.

The Service Portfolio includes third party services that are part of service offerings.

### **Service Catalogue:**

The Service Catalog describes the services that are currently in use, the business processes that are used, and the customer's service quality expectations. Ensures production and maintenance of the Service Catalogue with accurate information on all services and those being prepared to be run.

The Service Catalogue provides a central source of information on the IT services delivered.

Service pipeline and service catalogue are valid parts of service portfolio.

It is a database or structured document with information about all live IT services, including those available for deployment. It includes information about deliverables, prices, contact points, ordering, and request processes.

**Service Catalogue Management:** To provide and maintain a single source of information on all operations that are ready to be introduced to services.

**Governance:**

IT Governance is the responsibility of the board of directors. IT Governance is an integral part of enterprise governance.

Governance ensures that process and procedures are correctly followed. It Ensures that policies and strategies are actually implemented, and that required processes are correctly followed.

**Business case:** Provides justification for the project. The business case provides authority to project manager to apply resources for the project.

**Service Level Requirement:**

Service Level Requirement is a statement from a customer to a service provider describing their service expectations. A service provider prepares a service level agreement (SLA) based on the requirements from the customer. It records the business requirements of the IT service. The SLR is made in the form of a document that will serve as the basis for the future SLA. The SLR should describe the service, i.e. how the service delivers value required by the customer. The result of the defined SLR will be service level targets.

**Business Relationship Management**

It aims to maintain relationship with customers. ITIL Business Relationship Management identifies the needs of existing and potential customers and ensures that appropriate services are developed to meet those needs of the customers.

Sub-processes in Business Relationship Management:

**Monitor Customer Complaints**

Objective: To monitor the processing status of outstanding customer complaints and to take corrective action.



### **Maintain Customer Relationships**

Objective: To ensure that the service provider understand the needs of existing customers and establishes relationships with potential new customers. This process is responsible for maintaining the Customer Portfolio.

### **Identify Service Requirements**

Objective: To understand and document the desired outcome of a service, and to decide if the customer's need can be fulfilled using an existing service offering or if a new service must be created.

### **Handle Customer Complaints**

Objective: To record customer complaints and compliments, to assess the complaints and to instigate corrective action if required.

### **Sign up Customers to Standard Services**

Objective: To capture customer requirements and agree service level targets with customers who request the provision of existing standard services.

### **Customer Satisfaction Survey**

Objective: To plan, carry out and evaluate regular customer satisfaction surveys. The aim of this process is to find out the areas where customer expectations are not being met before customers are lost.

### **Relationship between SLM and BRM:**

#### **Business Relationship Management**

It aims to maintain relationship with customers. ITIL Business Relationship Management identifies the needs of existing and potential customers and ensures that appropriate services are developed to meet those needs of the customers.

- Focus on customer needs
- Customer satisfaction is the main goal of business relationship management.

## **Service Level Management**

SLM is responsible for finding a balance between the customers' needs and expectations and the costs of associated services, such that these are acceptable to both the customer and to the IT organization. SLM ensures that all current and planned services are delivered according to agreed targets.

- Reviews the level of IT services provided, and if necessary provide Corrective measures.
- Measurement of the achieved targets.

## **Vital business functions:**

It is function of a Business Process that is critical to the success of the Business. Through Business impact analysis we can identify vital business functions in the organization and their dependencies. These dependencies include resources, other processes etc.

Vital Business Functions are used in Capacity, Availability and Continuity management.

**Capacity Management** uses vital business functions in the Capacity Plan to ensure adequate service capacity and performance.

**Availability Management** uses vital business functions in the Availability Plan to design services and maintenance procedures that meet availability targets.

**Continuity Management** uses vital business functions to perform risk assessment, disaster avoidance, and recovery planning.

To identify the vital business functions, communicate with the Customer to understand what is really important to them. Active listening is very important to find out the vital business function.

## **Risk Management:**

To ensure that the workplace is a safe environment for its employees and customers.

To ensure that the organization assets, such as information, facilities, and building are protected from threats, damage or loss.

To ensure that the organization can continue to operate in the event of a major disruption or disaster.

**Risk management Options:**

1. Do nothing
2. Manual workarounds
3. Gradual Recovery (cold standby)
4. Intermediate Recovery (warm standby)
5. Immediate Recovery (hot standby)
6. Reciprocal arrangements

**Risk Management Tasks:**

- Countermeasures
- Managing a disaster
- Planning for potential disasters

Some of the actions taken to manage the risk are, identification of risk, analysis, and management of the exposure to risk.

**Risk assessment:**

The objective of risk management is to identify, assess and control risks.

A compiled list of evaluated risks and proposed counter measures. Risk management analyze the value of assets to the business, identifying threats to those assets and evaluate how vulnerable each asset is to those threats. Risk assessment can be quantitative or qualitative.

Risks are addressed within several processes in ITIL. To manage the risks identify the most critical business processes from the business impact analysis.

Risk mitigation assessment is used to determine where risk mitigation measures are required, and to identify Risk Owners who will be responsible for their implementation and ongoing maintenance.

**Service Provider:**

Service provider are organizations providing service to one or more internal or external customers.

3 service provider model Internal Service provider, External Service provider, Shared Service Provider.

**Internal service providers** are providers within the same business unit are called Internal Service Providers.

**External Service Provider:** A service provider which functions outside of the organization that can offer competitive prices and lower unit costs.

Service Strategy provides selection of services that a service provider offers to customer.

Purpose of service portfolio is to help the service provider to understand how its resources are allocated toward maximizing the value it offers to customers in the form of services.

Service Level Management is used in the creation of SLA (service level agreement) between customers.

**OLA** (Operational level agreement) exist only between parts of the service provider organization.

**SLA** (Service Level Agreement), it is an agreement between an IT service provider and a customer(s).

### **Supplier:**

The process charged with obtaining value for money from third-party suppliers. Supplier Management handles supplier evaluation, contract negotiations, performance reviews, renewals and contract terminations. A 3<sup>rd</sup> party responsible for supplying goods or services that are required to deliver IT services.

Responsibility of supplier management development, negotiation, and agreement of contracts.

**Objectives of Supplier Management** are,

- Updating the Supplier and Contract database.
- Planning for possible closure, renewal, or extension of contracts
- Negotiating and agreeing Contracts.

Supplier Management duties are vendor evaluation, contract negotiations, performance reviews, renewals, and terminations.

### **Service level agreement (SLA):**

The agreement between IT service provider and customer. SLA describes the IT service, and the responsibilities of IT service provider as well as customer. A single SLA covers multiple IT services or multiple customers. It suggests the relationship between the service provider and the customer.

Service Level Management is used in the creation of SLA between customers. In SLA, the wording must be clear and concise to allow no room for ambiguity. If something can't be measured, then it should not be documented is the principle of SLA.

**Multi-level SLA** is a three-layer structure which involves, service level, customer level and corporate level.

**Service-based SLA** is an agreement that covers one service for all users of that service.

**Customer based SLA** is a single agreement for an individual customer group that details the levels of service provided to that group.

Service based SLA is an agreement that covers one service for all the users of the service.

Operations management, carry out day-to-day activities for the delivery of services to ensure SLA is met.

SLAs must be monitored regularly and reviewed regularly, to see if service is being delivered according to specification.

To implement SLA comprises the activities in sequence

- Draft SLA,
- review underpinning contracts & OLA,
- negotiate,
- catalog services

### **OLA (Operational Level Agreements):**

They are performance agreements nearly identical in nature to SLAs except that they exist only between parts of the service provider organization.

The difference between SLA & OLA, An SLA is legally binding, an OLA is a best efforts agreement.

Service level management responsible for reviewing operation level agreement (OLA) on a regular basis.

OLA are between internal service providers & may be written in technical language.

### **Underpinning contract:**

Underpinning contracts are used to document the provisions of goods & services by customer.

It is a contract binding agreement between two or more parties (between 3rd party and the IT Service Provider) that defines the targets and accountabilities required for providing the service.

### **Activities of Service Level Management:**

- Produce service reports.
- Monitor service performance against SLA.
- Develop underpinning contracts and relationships.

Supplier Management and Service Level Management review underpinning contracts on regular basis.

In underpinning contracts for IT service we can find

- Financial arrangements related to the contract
- Description of the goods or service provided
- Responsibilities and dependencies for both parties

### **Service Design Package:**

A SDP is the document defining all aspects of IT service and its requirements throughout the lifecycle. It is produced for each new IT requirement.

SDP contains one or more documents that describe all aspects of service throughout its lifecycle, for use in transition & operation of the service.

SDP contains information that is passed to service transition to enable the implementation of a new service.

New requirements are identified in the Service Strategy stage within a Service Level Package (SLP) and a defined set of business outcomes.

This passes to the Service Design stage where a service solution is produced together with a Service Design Package (SDP) containing everything necessary to take this service through the remaining stages of the lifecycle.

The SDP passes to the Service Transition stage, where the service is evaluated, and validated, the Service Knowledge Management System (SKMS) is updated, and the service is transitioned into the live environment, where it enters the Service Operation stage.

### **Availability:**

Availability Management is used for defining, analyzing, planning, measuring, and improving the availability of IT services. This process makes sure that all designed services are available all the time in order to meet the business requirements.

Availability management is responsible for understanding the reliability of components to carryout required function under given condition over a period of time. Availability is an ability of an IT service or other configuration item to perform its agreed function as required.

Availability management is responsible for IT services and components & to plan, monitor the availability of IT services agreed in SLA's.

Availability is defined as the ability of a system, service, and configuration item to perform its function whenever required.

### **Aspects of availability:**

- Reliability
- Maintainability: Maintenance you do yourself, as a company
- Resilience: Redundancy

**SKMS:**

Knowledge Management is the process that service providers use to collect, analyze, and exchange information and knowledge within the organization. A key component of this process is the Service Knowledge Management System (SKMS).

SKMS is a set of tools and database that is used to manage knowledge, information & data. It is used to store and manage knowledge, info and data.

The KEDB and the CMS (Configuration management systems) form part of the larger SKMS.

Service Knowledge Management System with four levels, data and information, information integration, knowledge processing and presentation.

**Configuration item (CI)/CMS:**

Configuration management, Provides configuration model of the services, assets, and infrastructure by recording the relationships between service assets and configuration items.

A configuration item (CI) can exist as part of any numbers other CIs at the same time. Choosing which CIs to record will depend on the level of control an organization wishes to exert.

Configuration item is a service asset that needs to be managed in order to deliver an IT service. It is an asset, service component, or other item that is, or will be, under the control of Configuration Management.

A CMS is a collection of data that is stored together that describes aspects of a Configuration Item.

Configuration Items (CI's) are grouped and managed together. Configuration Item should include a unique identifier and the location of the CI. The level at which Configuration Items are normally broken down to the level at which it will be independently installed, changed or replaced.

**Configuration Management Database:** A database which contains all relevant details of each Configuration Item (CI) and details of the important



relationships between CIs. Configuration management monitors relationship between the configuration items.

The CMS stores records of Configuration Items in the CMDB (configuration management database). A database, which contains all relevant details of each Configuration Item (CI) and details of the important relationships between CIs.

Recording the relationship between configuration items is the responsibility of configuration management.

A Configuration item has,

- Attributes
- Category
- Relationships
- Status

A Configuration item

- Can be managed
- Is uniquely identifiable
- Is needed to deliver a service
- Is subject to change

A CMS is the system used to collect and manage Configuration Items (CI's).

### **DML (Definitive Media Library):**

It is a secure library where definitive authorized versions of all media Configuration Items (CIs) are stored and protected.

Copies of purchased software, Copies of internally developed software, relevant license information are stored in DML. DML & definitive spares are part of Service asset and configuration management.

It contains a number of software files, which are managed and kept separate from the live, development storage areas.

**Customer:**

A customer is someone who buys our services. This is the person or group that defines and agrees to our service level targets. Simply customer is the one who pays for the service.

**User:**

User is the person who uses the IT service on a day-to-day basis. Users are distinct from customers, as some customers do not use the IT service directly. User is the one who consumes the service.

**Change:**

A change is an event that results in a new status of one or more CI's, and which is approved by management, is cost-effective, enhances business process changes with a minimum risk to IT infrastructure.

Request for change are issued by customers, IT, & received by the Service Desk and handled through the Change Management process.

**Change types (standard, emergency and normal):**

**Standard Change:**

The term "standard change" means pre-approved, repeatable, pre-defined, low risk changes. If the change does not meet these criteria then it is not a standard change.

It is a pre-authorized change that has an accepted and established procedure.

**Normal change:**

Normal change is defined as the change, which meets predefined criteria that qualify them for handling through the Normal Change Management approval process.

**Emergency Change:**

These are those changes, which cannot be predicted and which unless addressed quickly put the environment at high risk.

**Change models:**

A change model defines specific pre-defined steps that will be followed for a change of this category. Change models may be simple with no requirement for approval or may be very complex with many steps that require approval. Change models used in change management are used not only for standard changes also used for recurring changes.

**Event:**

An event may indicate that something is not functioning correctly, leading to an incident being logged. Events may also indicate normal activity, or a need for routine intervention such as changing a tape.

A change of state which has significance to the CI or IT service. It requires operations to take actions, and end up with incident logging.

Event management depends on monitoring. Event management generates and detects notifications, while monitoring the status of components even when no events are occurring. Events may be detected by a CI sending a message.

After an event has been detected it may lead to an incident, problem or change, or it may simply be logged in case the information is needed. Response to an event may be automated or may require manual intervention.

Event Management is concerned with detection of events in the infrastructure and with selection of appropriate response actions.

**Sequence of Activities for event management:**

- Event occurs,
- Event notification,
- Event detection,
- Event significance,
- Event correlation,
- Close the event.

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.

**Alert:**

Alert means, a warning that a threshold has been reached, something has changed, or a failure has occurred. It is managed by Event management.

**Incident:**

An unplanned interruption to an IT service or reduction in quality of IT service or failure of a CI (configuration item) that has not yet impacted IT service.

Incident management's responsibility is to restore normal service operation as quickly as possible, minimize adverse impact on business operations, ensuring that agreed levels of service quality are maintained.

Incident will not become problems & must be handled separately.

**Problem:** Underlying cost of one or more incidents. The cause is not known usually at the time of problem record is created.

**Lifecycle of Incidents:**

Incident Identification  
Incident Logging  
Incident Categorization  
Incident Prioritization  
Initial Diagnosis,  
Incident Escalation  
Investigation & diagnosis  
Resolution & recovery  
Incident closure.

**Incident model** and **known error** records are used help to resolve incidents.

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.

Incident Management process is owned and executed by service desk.

### **Impact, urgency and priority:**

The relationship between urgency, priority, and impact: Priority should be based on impact and urgency.

Change management process determines priorities which are based on impact and urgency.

**Impact:** A measure of the effect of an incident, problem or change on a business process. Impact is based on how service levels will be affected. Impact & urgency are used to assign priority.

Priority = Impact \* urgency

### **Service request:**

Service request is a formal request from the user, for something to be provided.

Request Fulfillment Management is the process that manages service requests received from the users. A service request, is a request that has a standard procedure for response and should be approved by Change Management.

In general service request is a planned one. Service Request is a request from a user for some information, advice, standard change, or access to an IT service.

Duties of service desks involve mainly the activities that deal with incidents, change requests & service requests. Service request fulfillment, provides a means of dealing common user requests like non-incident support, new equipment, and training, user id request, password reset. Service Request Fulfillment process makes use of to meet user requests more effectively.

### **Problem:**

It is underlying cost of one or more incidents. The cause is not known usually at the time of problem record is created.

The primary objectives of Problem Management are to prevent incidents from happening, and to minimize the impact of incidents that cannot be prevented.

After an event has been detected it may lead to an incident, problem or change, or it may simply be logged in case the information is needed. Response to an event may be automated or may require manual intervention.

Incident will not become problem & must be handled separately.

**Workaround/Known Error:**

Workaround, is a way of reducing or eliminating the impact of the problem, for which a full solution is not yet available.

Known error record can be raised

- At any time when it would be useful to do so.
- After a workaround has been found.

Details of a Workaround should always be documented in the problem record.

A Known Error has been raised after diagnosis of a problem was complete but before a workaround has been found.

Problem management provides information to Incident Manager about problems, workarounds, and temporary fixes. A known error is the known cause of an incident for which a workaround exists.

A known error is a problem that has documented root cause and workaround. Known errors are created and managed throughout their life cycle by problem management.

The objective of problem management is to prevent problems and resulting incidents happening, to eliminate recurring incidents, and minimize the incidents that cannot be prevented. It includes all activities needed to diagnose the root cause of the problems and workarounds used by incident management. Helps to save money to reduce the number of incidents.

**KEDB (known error database):**

It is a database containing all known error records. It is created by problem management and used by incident and problem management. It is part of SKMS.

Incident Management and Problem Management will make use of KEDB.

The KEDB and the CMS (configuration management system) form part of the larger SKMS.

### **Known Error Database (KEDB) objective.**

- Objective is to facilitate faster diagnosis and resolution.  
Stores previous knowledge of problems & incidents.
- Concern of data quality.
- Part of the SKMS.

Maintenance of the Known Error Database (KEDB) is responsibility of problem management. KEDB is used by the Incident Management process to resolve incidents rapidly.

### **Service Operation & the Role of communication:**

Service Operation is where the value of the services being provided is first realized by the customer. During Service Operation, the day-to-day activities of the processes that manage the services takes place. The main objective is to make sure that IT services are delivered effectively and efficiently. This includes fulfilling user requests, resolving service failures, and fixing problems, as well as carrying out routine operational tasks.

### **Process within service operation:**

- Event management,
- Incident management
- Problem management
- Request fulfillment and access management

The role of communication in service operation is to communicate all aspects of service operation to management, business users, and customers.

Communication is essential for successful Service Operation, like any other phase of the Lifecycle.

### **Release Policy:**

A Release Policy should be defined for one or more services and would include the expected frequency for each type of release and the approach for accepting and grouping changes into a release.

It is a set of documents describing:

- General release planning framework
- General release definition and testing procedures
- General release documentation and package definition

### **Types of services:**

A service is a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.

A service to deliver will actually be split in several services; each of them will provide a single deliverable to be used by another service. These services could be classified in different types depending to who they will be addressed, and how. If these types are anyway delivered by using the same level of service, the way the various lifecycle steps will differ.

### **External service:**

An external customer-facing service is provided by a different organization from its customer.

### **Internal Service:**

An internal customer-facing service is provided by the same organization as its customer.

### **Supporting service:**

A supporting service is not directly used by the business, but is required by the IT service provider to deliver customer-facing services.

### **Change proposals:**

A formal proposal for major changes that involve high cost, risk or organizational impact.

A Change Proposal describes a proposed major Change, like the introduction of a new service or a substantial change to an existing service. The purpose of



Change Proposals is to communicate a proposed major Change and assess its risk, impact and feasibility before design activities begin. Change Proposals are typically created in Service Portfolio Management.

To assess change proposals that are typically submitted for significant Changes by Service Strategy. The purpose of assessing Change Proposals is to identify possible issues prior to the start of design activities.

**Change management:** To control the lifecycle of all changes through standardized methods and procedures, enabling beneficial changes to be made with minimum disruption to IT services.

Change control board, a body to support authorization of changes. Assists in change management, assessment, prioritization, scheduling of change.

3 types of change:

Standard change, emergency change, normal change.

**Standard change:** A change to a service, which has preauthorized approach to its execution & follow a standard procedure.

**Emergency change:** A change in response to prevent a business critical error.

**Normal change** is defined as the change, which meets predefined criteria that qualify them for handling through the Normal Change Management approval process.

**CSI register:**

- It registers & records all individual improvement opportunities throughout the lifecycle.
- It is a service asset managed by SKMS.
- CSI register includes ID, Description, Relative Size, priority, Timescale.

**Outcomes:**

The result of carrying out an activity, following a process, or delivering an IT service known as outcome.

Functions are self-contained units responsible to carry-out tasks to create specific outcomes.

### **Enterprise Architecture:**

An Enterprise Architecture is a description of the essential components of a business, including the relationships between them. In most cases, it covers the following domains: Business, Information, Applications and Technology.

The Enterprise Architect is responsible for maintaining the Enterprise Architecture, a description of the components of a business, including their interrelationships.

### **Patterns of business activity:**

Patterns of business activity generates demand for services.

### **Potential benefits of analyzing patterns of Business activity (PBA)**

- Service Design can optimize designs to suit business demand patterns.
- Service Operation can adjust allocation of resources and scheduling.
- Financial Management can approve incentives to influence demand.
- Service Portfolio Management can priorities appropriate investments.

The process which is primarily supported by the analysis of Patterns of Business Activity is demand management.

### **The Deming Cycle (plan, do, check, act):**

Deming Cycle (Plan, Do, Check, Act) is used for quality improvement activities across the organization.

The main goal of using the Deming Cycle by facilitating steady ongoing improvement.

CSI implementation steps into the correct sequence in alignment with the Deming's plan, Do, Check, Act (PDCA) model are,

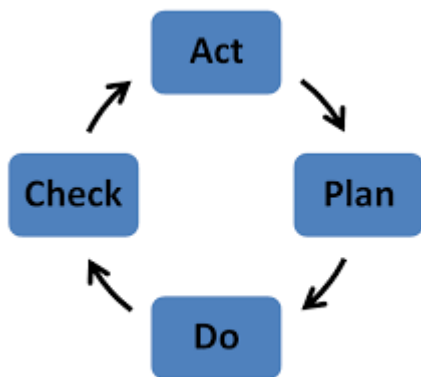
- Identify the scope, objectives, and requirements for CSI.
- Allocate roles and responsibilities to work on CSI initiatives.

- Measure and review that the CSI plan is executed and its objectives are being measured.
- Decision on implementation of further enhancement on the process.

Type of improvement should be achieved by using the Deming Cycle in a steady, ongoing improvement.

**Deming cycle stages:**

Plan for improvement, implement initiatives, monitor, measure and review and continual improvement.



- Plan = related to a problem.
- Do = completing the activities.
- Check = review activities and outcomes.
- Act = focus on improving.

## Service Strategy

Define a strategy of services to offer and define a strategy of how to manage those services.

It defines how to deliver services to meet a customer's business outcome and defines how to manage services.

### Service Strategy focuses on

1. Creating business cases for investment.
2. Finding out the marketing opportunities for the product.
3. Identifying the existing market competition for the product.
4. Delivering customer value.

To assess the service provider's capabilities, competitors, as well as market spaces, in order to develop a strategy to serve customers. Once the strategy has been defined, Strategy Management for IT Services is responsible for ensuring the implementation of the strategy.

- Identify and prioritize opportunities.
- Define the principles of developing service management policies and guidelines across the service lifecycle.
- It helps organizations manage the costs and risks.
- Create objectives and expectations of performance towards serving customers.

### Strategy generation:

- Select the strategy that delivers the value.
- Focus on delivering value to customers.
- Identify the market expectations.
- Develop strategies to fulfill the market gap and capture the market.

Service Strategy provides guidance for the organization to operate and grow successfully, and act in a strategic manner while transforming Service Management capabilities into a strategic asset.

### **3 type of service providers:**

Type I: Internal service provider: They are within a business unit.

Type II: shared services unit: An internal service provider that provides shared IT services to more than one business unit.

Type III: External service provider: They are the services provider that provides IT services to external customer.

### **Service strategy has 3 processes:**

Service Portfolio Management, IT Financial Management, & Demand management.

#### **1. Service Portfolio Management**

Service portfolio describes the services of a provider in terms of business value. The goal of service portfolio management is to realize maximum value while managing risks and costs.

Owned by service portfolio manager, it contains the below sub-processes:

- ✓ **Service Strategy assessment:** assesses the current situation in the market.
- ✓ **Service strategy definition:** to define goals of the service, as well as define customer categories.
- ✓ **Service portfolio update:** adjusts services offered in portfolio.
- ✓ **Strategic planning:** defines and initiates projects required to execute Service Strategy.
- ✓ **Demand Management**

### **Service portfolio covers 3 subsets of services,**

Service catalogue, service pipeline, retired services

**Service Catalogue:** This is part of service portfolio that is visible to customers. A document with information about all IT services, including those available for deployment.

**Service Pipeline:** All services that are at a conceptual or development stage. It contains all new and changed business requirements that have not yet become services

**Retired Services:** Services that are withdrawn.

## 2. IT Financial Management

### **Financial management benefits:**

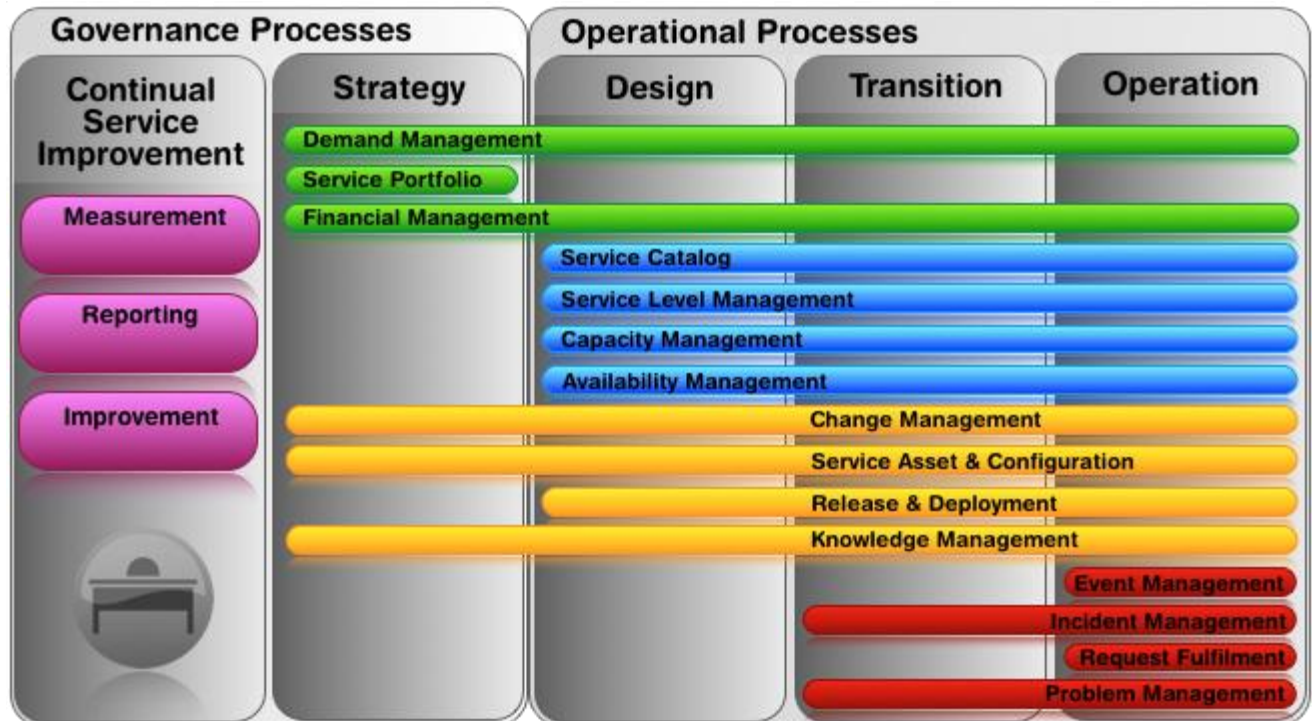
Improved decision making

Financials compliance and control

It is owned by the financial manager, it is made of four sub-processes:

- ✓ **Financial management support:**
- ✓ **Financial planning:**
- ✓ **Financial analysis and reporting:**
- ✓ **Service invoicing:**

**3. Demand Management:** Used by service providers to achieve the most effective utilization of service assets by influencing how & when demand occurs. It aligns supply with demand.



### Service Design:

To deliver new service.

It is used to ensure service will run within budget & meet customer requirements.

Key elements of Service Design are People, Processes, Products, and Partners.

**4 P's of service Design:** People, process, products, partners. When designing a new service, the 4 P's are taken into consideration throughout the service lifecycle.

Many designs, plans and projects fail through a lack of preparation and management. The implementation of ITIL service management as a practice is about preparing and planning the effective and efficient use of the four Ps: the People, the Processes, the Products (services, technology and tools) and the Partners (suppliers, manufacturers and vendors).

There are five aspects of service design. These are:

- New or changed services
- Service management systems and tools, especially the service portfolio, including the service catalogue
- Technology architecture and management systems
- The processes required
- Measurement methods and metrics

### **Service solutions for new or changed services:**

Five major aspects of service design:

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

### **Value service design provides to the business:**

- Improve quality of Service
- Improve Consistency of Service
- Improve Service Performance
- Improve IT Governance
- Improve effectiveness of service management and IT process
- Improve information and decision making

## **Continuous Service Improvement**

Responsible for managing improvements to IT service management processes & IT services. The CSI process aims to continually improve the effectiveness and efficiency of IT processes and services.

Continual Service Improvement is responsible for continually aligning IT services to changing business needs. These improvement activities support the



lifecycle approach through Service Strategy, Service Design, Service Transition, and Service Operation. In general, the improvement process is about looking for ways to improve process efficiency and cost effectiveness throughout the entire service lifecycle.

**Objectives of CSI:**

- Recommend improvements in all phases of the lifecycle
- Introduce activities which will increase quality, efficiency, customer satisfaction
- Operate cost effective IT services without affecting customer satisfaction

Deming Cycle (Plan, Do, Check, Act) used for quality improvement activities across the organization.

**Metric:** It measures whether a certain variable meets its target value.

**CSI needs 3 metric types:**

- Technology metrics
- Process metrics
- Service metrics

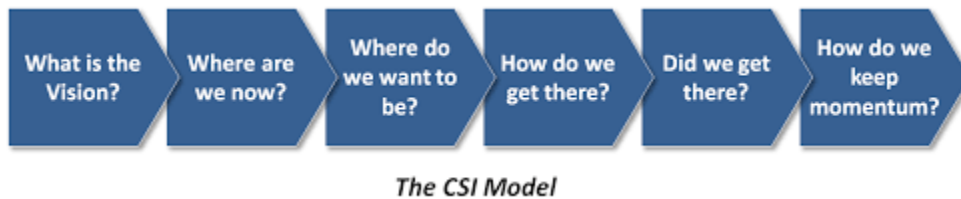
**CSF (Critical Success Factors):** These are the elements which are essential to achieve the business objective. This can be qualitative or quantitative.

Qualitative: customer satisfaction survey

Quantitative: costs of the incident

**Continuous Service Improvement Model:**

- What is the vision?
- Where are we now?
- Where do we want to be?
- How do we get there?
- Did we get there?
- How do we keep the momentum?



### **7 Step Improvement Process:**

The 7-Step Improvement Process follows, in an attempt to determine how to improve services:

- Define what you should measure,
- Define what you can measure,
- Gather the data,
- Process the data,
- Analyze the data,
- Present and use the information,
- Implement corrective action.

3 types of metrics that an organization should collect to support continual service improvement are Technology, process, and service.

### **KPI:**

Key performance metrics are metrics which specifically indicate progress toward Critical Success. It is used to measure the success factors in the organization.

Key performance indicator is a metric that is used to help manage a process, IT service or activity. KPI's should be selected to ensure that efficiency, effectiveness & cost effectiveness.

Key performance indicators represent a particular value or characteristic that is measured to assess whether an organization's goals are being achieved. KPI reflects the critical success factors, stakeholder needs, and the expectations of the organization. For KPIs and their measures to be effective, the organization's goals need to be specific, measurable, agreed, realistic and time-bounded.

Process owner is responsible for documenting the process, defining the KPI, improving the process, accountable for the output of the process.

**CSF:**

CSF (critical success factors) is something that must happen if an IT service or process to succeed. KPIs are used in conjunction with CSFs and must have a target that is to be achieved. It is a critical factor or activity required for ensuring the success of a company or an organization.

Critical success factors are those few things that must go well to ensure success for an organization, and, therefore, they represent those managerial or enterprise area, that must be given special and continual attention to bring about high performance.

KPI are metrics which specifically indicate progress toward Critical Success factors. A critical success factor drives the strategy forward, it makes or breaks the success of the strategy.

KPI is simply a metric that is tied to a target to determine if we have met our CSF or not.

**Baseline:**

Baseline is related to configuration management. A baseline is a benchmark that can be used as a reference point.

Configuration Baseline captures the structure, contents and details of the infrastructure and represents a set of items that are related to each other.

Recorded snapshot of product or service to provide a basis for configuration auditor regression called Configuration baseline.

Performance baseline, used to measure changes in performance over the lifetime of an IT service.

**Baselines established at the below 3 levels.**

Strategic level (Goals and Objectives)

Tactical level (Process and Maturity)

Operational level (Metrics and KPI's)

Baseline are used within Service Asset and Configuration Management to provide a roll-back point useful in managing risk around changes in the environment.

Baseline measurement is a point of reference for continual improvement. Used as a starting point to measure effect of a service improvement plan.

### **Type of Metrics:**

Metrics are the definitions as what will be measured and how it will be measured.

Metrics that measure the capability and performance of a process effectiveness, Progress, efficiency, compliance. It is something which is measured and reported to help manage a process.

**3 type of metrics**, Technology metrics, process metrics, and service metrics.

The architectures, CI's, services, processes are used to define metrics.

**Technology metrics** measure components. Technology metrics measure specific aspects of the IT infrastructure and equipment. E.g. Of technology metrics (CPU utilization, amount of disk space used etc.)

**Process metrics** measure some specific aspect of a process. Whether an organization is consciously following ITIL or not. E.g. of process metrics (average number of requests completed per week, number of failed change requests per month etc.). Process metrics provide useful information about the functioning of one or more processes in the organization.

**Service metrics** measure the end to end service. They provide an end-to-end measurement of service performance. E.g. of service metrics (Time to complete a transaction)

4 types of metrics that can be used to measure the capability and performance of processes named as,

- Progress
- Compliance
- Effectiveness
- Efficiency

The relationship between technology and service metrics (Technology metrics are used in calculating end-to-end service metrics).

Technology, process, and service are the 3 types of metrics that an organization should collect to support continual service improvement (CSI).

KPI are metrics which specifically indicate progress toward Critical Success factors.

### **Service Design:**

Design services, which can be efficiently maintained, to satisfy business goals. The goal of service design is to design new or changed services. People, process, products, partners. When designing a new service, the 4 P's are taken into consideration throughout the service lifecycle.

#### **Objectives of service design:**

- It must contribute to quality of IT services.
- It must contribute to business objectives.
- Minimize/prevent risks
- Improve the efficiency of IT services.

### **SERVICE DESIGN PROCESSES**

The following seven processes are described within Service Design:

#### **SERVICE LEVEL MANAGEMENT**

SLM is responsible for finding a balance between the customers' needs and expectations and the costs of associated services, such that these are acceptable to both the customer and to the IT organization. Discussing reports with customers showing whether services have met their targets or not. Metrics for measuring the effectiveness of SLM is customer satisfaction score. It is responsible for reviewing operation level agreement (OLA) on a regular basis.

SLM is the process charged with securing and managing agreements between customers and the service provider regarding the levels of performance & levels of reliability associated for the services. Service Level Management is used in the creation of SLA between customers.

### **Activities of Service Level Management:**

- Produce service reports.
- Monitor service performance against SLA.
- Develop underpinning contracts and relationships.
- Improve client satisfaction
- Review of underlying agreements
- Reviewing and improving services.

### **Objectives of SLM:**

Monitoring, measuring, and reporting the actual level of services provided.

Monitoring and improving customer satisfaction.

Defining, documenting, and agreeing the level of services to be provided.

Options for SLA are,

- Service based SLA
- Customer based SLA
- Multi-level SLA

## **AVAILABILITY MANAGEMENT**

Availability Management is used for defining, analyzing, planning, measuring, and improving the availability of IT services. This process makes sure that all designed services are available all the time in order to meet the business requirements.

Access Management is closely related to Information Security Management and Availability Management. Availability Management needs to consider Service and Component availability elements. It is to ensure that service availability meets the agreed needs of the business. Availability management is used to plan, monitor the availability of IT services agreed in SLA's.

Availability Management is to ensure that the level of service availability delivered in all services is matched to or exceeds the current and future agreed

needs of the business, in a cost-effective manner. Availability Management is responsible for availability of Services and Components.

2 levels of Availability Management are Component availability & service availability.

**MTRS (mean time to restore service):** It is the time within which a service is backup after a failure.

**MTBF (mean time between failures):** The average time that a service can perform its agreed function without interruption.

**MTTR (mean time to repair):** The average time taken to repair a CI or service after a failure.

**MTBSI (mean time between service incidents):** The mean time from when a system fails until its next failure.

**Reliability:** Reliability of a service indicates how long it can perform its agreed function without interruption.

**Maintainability:** maintainability of a service indicates how fast it can be restored after a failure.

**Serviceability:** It describes the ability of 3<sup>rd</sup> party supplier to meet the terms of the contract.

Proactive Availability Management activities are testing of resilience mechanisms & Risk assessment.

**Design coordination:**

Design coordination used to ensure that utility and warranty requirements are properly addressed in service design.

Design Coordination aims to coordinate 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.

Design Coordination is responsible for coordinating the design activities carried out by other Service Design processes.

### **Sub-processes in Design coordination:**

#### **Design Coordination Support**

Objective: To coordinate and develop Service Design resources and capabilities, and to ensure that a consistent approach to designing new or changed services is adopted across all service transition projects.

#### **Service Design Planning**

Objective: To plan design activities in detail, making sure that all relevant aspects are considered during service design.

#### **Service Design Coordination and Monitoring**

Objective: To coordinate the design activities performed by various Service Design processes, and to determine if the new or changed service can be provided economically.

#### **Technical and Organizational Service Design**

Objective: To determine how a new service will be provided from an IT perspective. In particular, this means to specify any technical infrastructure to be created, as well as required organizational changes.

#### **Service Design Review and RFC Submission**

Objective: To submit the Service Design Package to a final review and initiate the implementation of the service by submitting a formal Request for Change.

### **Objectives of Availability management:**

- All services are underpinned by sufficient, reliable and properly maintained CIs.



- Where CIs are not supported internally there are appropriate contractual agreement with third party suppliers.
- Changes are proposed to prevent future loss of service availability

**Availability Management process include the following,**

- Ensuring services are able to meet availability targets.
- Monitoring and reporting actual availability.
- Improvement activities, to ensure that services continue to meet or exceed their availability goals.

**Service availability:**

Availability Management is to ensure that the level of service availability delivered in all services is matched to or exceeds the current and future agreed needs of the business, in a cost-effective manner.

2 levels of Availability Management are Component availability & service availability.

It is an ability of an IT service or other configuration item to perform its agreed function as required. Availability is usually calculated as a percentage.

Percentage availability can be described as

$(\text{Agreed service time} - \text{downtime}) / \text{agreed service time} * 100$

**Transition Planning and Support:**

The planning and coordination necessary to properly introduce the functionality specified in service design into production. This stage defines the transition strategy, prepares for service transition, develops the service transition plan and supports stakeholders.

It is used to plan and coordinate the resources to deploy a major Release within the predicted cost, time and quality estimates.

### **Transition Planning and Support provides guidance to**

- Improve business process capabilities
- Effectively upgrade the IT infrastructure in timely alignment with business needs.

The Service Transition and Support process is responsible for planning and coordinating resources to ensure specifications for the service design are realized and, starting with the transition phase, to identify, manage and limit risks that could interrupt the service in operation. It is used to identify and manage risks according to organization risk management framework.

Activities for Transition Planning,

- Set up transition strategy
- Prepare Service Transition
- Plan and coordinate Service Transition
- Support

### **CAPACITY MANAGEMENT**

Capacity management is responsible for ensuring the capacity of IT services and IT infrastructure is able to meet current agreed & future capacity needs in a cost effective and timely manner.

The Process to ensure that the Capacity of IT Services and the IT Infrastructure is able to deliver agreed Service Level Targets in a Cost Effective and timely manner. Capacity Management considers all resources required to deliver the IT Service, and plans for short, medium, and long term Business Requirements.

#### **Activities of capacity management:**

##### **Reactive activities:**

- Monitoring and measuring
- Responding to capacity related events

##### **Proactive activities:**

- Budgeting, planning
- Optimizing the performance of a service
- Predicting future trends

Capacity Management activities are Performance monitoring, demand management, application sizing, modeling, tuning, capacity planning, reporting.

Capacity management finds the correct balance between resources capabilities and demand.

**Sub-processes of capacity management** are

- Business capacity management
- Service capacity management
- Component capacity management

**Business capacity management:**

It is the activity responsible for understanding future business requirements for use in the capacity plan. Translates customer requirements into specifications for service and IT infrastructure.

**Service capacity management:**

It is the activity responsible for understanding the performance and capacity of IT services. 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.

**Component capacity management:**

It is the process responsible for understanding the capacity, utilization and performance of configuration items. Data is collected, recorded and analyzed for use in the capacity plan. Manages controls and predicts the performance, usage and capacity of individual IT components.

**Capacity plan:**

Capacity Management uses business functions in the Capacity Plan to ensure adequate service capacity and performance.

Capacity plan is used to manage the resources required to deliver the IT services. The plan has details like predications of business demand, and cost options to deliver the agreed service level targets.

Capacity Plan should be prepared so it can be used as input into the organization's budget process in line with the organization's financial cycle.

When creating the capacity plan consider the below factors,

- Improvement plans from Availability and Service Level Management.
- A description of methods used to calculate potential capacity requirements.
- Cost forecasts for potential resources identified within the plan.

## **IT SERVICE CONTINUITY MANAGEMENT**

ITSCM is the process that supports the Business Continuity Management process by managing risks that could affect services.

IT Service Continuity Management is the process that prepares IT Services for recovery and continuation in the case of a major incident. This process takes proactive steps, rather than just reactive steps, so that the impact is minimized. When a disaster occurs, this process ensures that there is a continuance of service without any interruption.

ITSCM process is to ensure that, by managing the risks that could seriously affect IT services, the IT service provider can always provide minimum agreed business-related service levels.

IT service continuity management interacts with

- Capacity management
- Service level management
- Configuration management

## **SERVICE CATALOG MANAGEMENT**

Service catalog is a database or structured document with information about all live IT services, including those available for deployment. It includes information about deliverables, prices, contact points, ordering, and request processes.

Service Catalog Management is to provide and maintain a single source of info on all operational and ready to be introduced services.

The Service Catalog describes the services that are currently in use, the business processes that are used, and the customer's service quality expectations. Ensures production and maintenance of the Service Catalogue with accurate information on all services and those being prepared to be run.

### **Responsibility of Service Catalog Management:**

- To ensure that information in the service catalogue is consistent with information in the service portfolio.
- To ensure that all operational services are recorded in the service catalogue.
- To ensure that information in the service catalogue is accurate.

Service Catalogue Manager has responsibility for producing maintaining the Service Catalogue to ensure that the information within the Service Catalogue is adequately protected and backed- up.

2 aspects of service catalog are Technical Service Catalogue and Business Service Catalogue.

**Business Service Catalogue** contains details of the IT services delivered and links to the business process they support.

**Technical Service Catalogue:** contains details of the IT services delivered links to the supporting services, and configuration items necessary to deliver the service.

Service pipeline and service catalogue are valid parts of service portfolio.

## **SUPPLIER MANAGEMENT**

Supplier Management is the process that manages the relationships between the IT organization and its suppliers. It manages Suppliers, especially 3rd party, although some can be internal suppliers, and services they provide to the client. The goal is to ensure quality, consistency, and value for money.

Responsibility of Supplier Management are development, negotiation, and agreement of contracts. Supplier Management and Service Level Management

processes review Underpinning Contracts on a regular basis. It is the process which is responsible for managing relationships with vendors.

**Supplier:** A 3<sup>rd</sup> party responsible for supplying goods or services that are required to deliver IT services.

**Contract:** A legally binding agreement between 2 or more parties.

### **Objectives of Supplier Management**

- Negotiating and agreeing Contracts
- Planning for possible closure, renewal, or extension of contracts.
- Updating the Supplier and Contract database

Supplier Management duties are vendor evaluation, contract negotiations, performance reviews, renewals, and terminations.

### **Phases of supplier management:**

- Identify business requirements
- Evaluate suppliers
- Categorizing suppliers
- Manage performance of suppliers
- End contract

It is the process charged with obtaining value for money from third-party suppliers. Supplier Management handles supplier evaluation, contract negotiations, performance reviews, renewals and contract terminations.

## **INFORMATION SECURITY MANAGEMENT**

It is used to align IT security with business security and ensure that information security is effectively managed in all service management activities.

Information Security Management is the process that protects information confidentiality, integrity, and availability by creating and enforcing the Information Security Policy. Information Security Management relates to IT Service Continuity Management, since information security will form part of the overall approach for IT service continuity. Information security management within the corporate governance framework, which provides strategic direction for security activities & ensures objectives are met.

Elements of an Information Security System are Control, Plan, Implement, Evaluate, and Maintain. Information security management responsible for the availability, confidentiality, and integrity of data.

Objectives of Information security management are availability, confidentiality, integrity.

**Service Delivery sourcing strategies:**

- Insourcing: using internal resources.
- Outsourcing: using external resources.
- Co-sourcing: A number of organizations working together for the solution.
- BPO (business process outsourcing): one organization takes over the provision of the entire business function on behalf of another.
- KPO: (Knowledge Process Outsourcing): Organization provides domain based, knowledge services for another organization.
- Multisourcing: 2 or more organizations work together to deliver a service, sharing the benefits.

**SERVICE TRANSITION**

Service Transition is the phase where new or changed services are transitioned into Service Operation. Plan and manage the capacity and resources of the required package; build, test and deploy a release into production. Service transition establish the services specified in the service design phase based on stakeholder requirements.

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

Service Design Package passed to service transition to enable a new service. Service transition provide guidance on introducing new services, Decommissioning services, Transfer of services between service providers.

Activities performed within this phase include:

**Service Transition provides value to the business by means of:**

- Enabling business change.
- Reducing the number of defects in the live environment.
- Enabling the business to make use of new and changed services.
- Ensuring that designs for services are implemented as planned.
- Ensuring that the Service Management organization is prepared to support new and changed services.

**Goals of Service Transition:**

- Ensure the provided service meets the requirements
- Support the change process for the business
- To ensure that agreed services are delivered from service design to service operation.

It is managed by service transition manager.

**Responsibility of Service Transition:**

- To plan the resource requirements to manage a release.
- To ensure that a service can be managed, operated, and supported within constraints specified by design
- To provide quality knowledge of change and release and deployment management

The following four processes are described within **Service Transition:**

**CHANGE MANAGEMENT**

Change Management ensures that standard methods are used to manage all changes to the production environments. It tracks all changes to service management processes, service assets, and configuration items recorded in the Configuration Management System. All changes are done in accordance with standard procedures that minimize risk to the business. During this process, a service provider assesses and evaluates the risks associated with a change and develops a backup plan to follow if it fails, called a back out or rollback procedure.

A service request, is a request that has a standard procedure for response and should be approved by Change Management. Change management process owner is responsible for defining the KPI for the change management process.



Change management ensure that changes are recorded, evaluated, authorized, prioritized, implemented, documented and reviewed in a controlled manner. A RFC for a change to be made, requested to CAB for approval.

### **Aim of change management:**

- To ensure that all changes to service assets and configuration items.
- To ensure the impact of changes is better understood
- To ensure proper methods and procedures are used for efficient and prompt handling of changes
- Overall business risk is optimized
- All changes to Service Assets and Configuration Items (CIs) are recorded in the Configuration Management system
- Standardized methods and procedures are used for efficient and prompt handling of all Changes.

### **Purpose of 7 R's** in change management

They represent seven questions that must be considered when assessing a change.

- Who raised the change?
- Reason for the change,
- Risks involved in the change
- Resources Required,
- Who is responsible for the implementation?
- What is Return required from change,
- Relationship between this change and other changes.

Change management process owner exists to support authorization of changes and assist change management in assessment and Priority of change when needed.

Error control is used to resolve known errors through the change management process. Change management ensures that scheduling decisions are based on Business urgency, business impact, resource requirements and availability. Remediation planning is used when the change is not successful. RFC are

issued by customers, IT, & received by the Service Desk and handled through change management process.

**Normal change:**

It is defined as the change, which meets predefined criteria that qualify them for handling through the Normal Change Management approval process.

**Standard change:**

These are changes which are pre-approved for implementation.

**Expedited/Emergency change:**

These are those changes, which cannot be predicted and which unless addressed quickly put the environment at high risk.

**Activities in sequence**, the Change Management process are

- Record the RFC
- Review the RFC
- Assessment and evaluate the change & authorize the change
- Plan Updates
- Implementation co-ordination
- Review and Close the Change Record

**Change management tasks:**

- Filtering Changes
- Managing Changes
- Managing Change Process
- Chairing CAB and CAB/EC
- Review and Closure
- Management Information

## **SERVICE ASSET AND CONFIGURATION MANAGEMENT**

Service Asset and Configuration Management (SACM) is composed of both Asset Management and Configuration Management. It aims to maintain information about Configuration Items required to deliver an IT service, including their relationships. It deals with these individual components, their attributes, and their relationships.

SACM manages the service assets and configuration items in order to support the other service management processes.

Service asset and configuration management is the process which is responsible for controlling, recording, and reporting on the relationships related to the components of the IT infrastructure. It is responsible for the Definitive Media Library and Definitive Spares.

**Definitive Media Library:** Contains a number of software files, which are managed and kept separate from the live, development storage areas. It contains associated CI's, licenses and documentation

**Definitive spares:** Spare components and assemblies that are maintained at the same level as the comparative system within the live environment.

**Configuration item:** It is a service component controlled by configuration management.

**Attribute:** An attribute is a piece of information about a CI.

**CMDB:** It is a database used to store configuration records of CI.

### **Scope of service asset and configuration management:**

- Identification of configuration items
- Recording relationships between CIs
- Recording and control of virtual CIs.

### **Activities of Service asset and configuration management:**

- Configuration identification

- Management and planning
- Status accounting and reporting
- Configuration control
- Verification and audit

## **RELEASE AND DEPLOYMENT MANAGEMENT**

Release is a set of new or changed CI's that are tested and will be implemented into production together.

Release and Deployment Management is the process during which service providers move services for release into the live environment. This process includes the building, testing, and delivery of the service in an effort to provide the customer with expected results.

To define and agree release and deployment plans with customers, is the responsibility of release and deployment management.

**Release:** A set of new or changed CIs that are tested and will be implemented together.

**Release unit:** It is a part of the service that is included in the release according to the organization's release guidelines.

It is used to build, test and deliver new or changed services into production environment. It include processes, systems required to build, test and deploy release into production in accordance with SDP.

### **Activities in Release and Deployment management:**

- Planning
- Preparation for building and deployment
- Planning & preparing for deployment
- Deployment
- Verify deployment
- Support deployment
- Review and close

### **Four phases of release and deployment:**

Release and Deployment Management is the process during which service providers move services for release into the live environment. Release Management and Deployment Management is to ensure that the integrity of the live environment is protected and that the correct components are released.

Four phases for release and deployment are,

- Release and deployment planning
- Release build and test
- Deployment
- Review and close

### **KNOWLEDGE MANAGEMENT**

Knowledge management improves the quality of decision making by ensuring that reliable and safe information is available during the service lifecycle.

Knowledge Management is the process that service providers use to collect, analyze, and exchange information and knowledge within the organization. A key component of this process is the Service Knowledge Management System (SKMS). Effective sharing of knowledge requires the development and maintenance of SKMS.

It is used to ensure timely retrieval of relevant ideas, perspectives, and information to the audience for informed decision making.

The main goal of Knowledge Management is to enable organizations to improve the quality of management decision making.

Knowledge according to knowledge management: Experiences, ideas, insights, and judgments of individuals.

Knowledge management process, share perspectives, ideas, experience & information to enable informed decisions.

### **Knowledge management activities:**

- Knowledge management strategy
- Knowledge transfer
- Information management
- Usage of SKMS

### **Data-to-Information-to-Knowledge-to-Wisdom (DIKW):**

A way of understanding the relationship between data, information, knowledge, and wisdom. DIKW shows how each of these builds on the others.

**Data** comes in the form of raw observations and measurements.

**Information** is created by analyzing relationships and connections between the data. It is capable of answering simple "who/what/where/when/why" style questions. Information is a message, and consider the audience and the purpose.

**Knowledge** is created by using the information for action. Knowledge answers the question "how". Knowledge is a local practice or relationship that works.

**Wisdom** is created through use of knowledge, through the communication of knowledge users, and through reflection. Wisdom deals with the future, as it takes implications and lagged effects into account

### **Service validation & Testing:**

Testing of services during service transition phase ensures that the new and changed services are fit for purpose and fit for use.

When a new service is designed, these service assets are tested in relation to design specifications and requirements.

Fit for purpose means that the service does what the client required, so that the service supports the business.

Fit for use addresses aspects like availability, capacity, continuity, security of service.

The goal of service validation & testing is to ensure the delivery of the value that is agreed and expected.

**Service model:** It describes the structure and dynamics of a service provided by service operation.

**Activities:**

- Validation and test management
- Verification of test plan and design
- Preparation of test environment
- Testing
- Evaluate exit criteria and report
- Closure

**Service Transition Outcome:**

- -An updated service portfolio consisting of all new or changed service components.
- -An updated service package that defines the services offered to the customer.

**Change Evaluation:**

It is a generic process to verify whether the performance is acceptable. It is critical for CSI and service development and change management.

**Evaluation process Activities:**

- Plan the evaluation
- Evaluating the predicted performance
- Evaluating the actual performance

Predicted performance of a service is expected performance. Actual performance is the performance following a service change.

**SERVICE OPERATAION**

Service operation provides effective & efficient delivery and support of IT services to ensure value to the customer. To enable business to meet objectives by managing day-to-day operations.

Service Operation is where the value of the services being provided is first realized by the customer. During Service Operation, the day-to-day activities of the processes that manage the services takes place. The main objective is to make sure that IT services are delivered effectively and efficiently. This includes fulfilling user requests, resolving service failures, and fixing problems, as well as carrying out routine operational tasks.

Service operation is responsible for coordinating and carrying out the activities and processes required to deliver and manage services at agreed levels to business users and customers. To deliver and manage IT services at agreed levels to business users and customers.

From the customer viewpoint, in service operation of the lifecycle is actual value seen. If service interruptions occurs service operation is responsible for restoring service as quickly as possible.

Service Operation also adds business value by the below means

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

### **Achieving balance in Service Operation:**

Service potation must achieve a balance between the following conflicting priorities,

- External view Vs Internal view
- Cost Vs Quality
- Reactive Vs Proactive
- Stability Vs Response

### **Communication related function that Service Operation to perform:**

- Performance reporting
- Routine operational communication
- Communication related to changes
- Communication between Data Centre shifts



**Correct list of processes** within the service operation stage of the service lifecycle:

- Event management
- Incident management
- Problem management
- Request fulfillment
- Access management

Balance in Service Operation depends on the following factors

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

#### **4 Functions of Service Operation:**

#### **IT OPERATIONS MANAGEMENT**

The IT Operations Management function is responsible for the daily operational tasks needed to manage the IT infrastructure according to the Performance Standards defined during Service Design.

The aim of IT Operations Management is to monitor and control the IT services and IT infrastructure. An IT Operations Manager will be needed to take responsibility for all of the IT Operations Management related activities.

#### **TECHNICAL MANAGEMENT**

The Technical Management function provides detailed technical skills and resources needed to support the ongoing operation of the IT Infrastructure. Technical Management also plays an important role in the design, testing, release, and improvement of IT services and is responsible for the daily operation of the IT infrastructure.

## **SERVICE DESK**

Service Desk is the primary point of contact for users when there is a service disruption, service request, or some categories of change request. The Service Desk provides a single point of communication between service users and the IT organization.

## **APPLICATION MANAGEMENT**

The Application Management is responsible for managing applications throughout their lifecycle. The Application Management supports and maintains operational applications.

**Service Operation** adds business value by:

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

## **6 processes are used by the operation functions**

### **EVENT MANAGEMENT**

The process that monitors all events that occur through the IT infrastructure. It allows for normal operation and also detects and escalates exception conditions during service failures.

The ability to detect events, make sense of them and determine appropriate control action is the responsibility of event management.

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. It detects the changes in state of CI's, environmental conditions, licenses & security.

Event management is a process which is responsible for monitoring an IT service and detecting when the performance drops below defined acceptable

limits. Event management depends on 2 types of monitoring tools which is active and passive.

Events can be classified as

- Events that indicate a normal operation
- Events that indicate an abnormal operation
- Events that indicate unusual operation

### **Sequence of Activities for event management**

- Event occurs
- Event notification
- Event detection
- Event significance
- Event correlation
- Close the event

**Alert:** It requires a person to perform a specific action on a specific device at a specific time.

## **INCIDENT MANAGEMENT**

To manage the lifecycle of all Incidents. The primary objective of Incident Management is to restore the IT service to users as quickly as possible.

Main objectives of Incident Management is to minimize adverse impacts on business operations.

**Incident:** An unplanned interruption to an IT service or reduction in the quality of an IT service.

### **Incident Management activities**

- Identification (through user, e-mail, phone etc.)
- Logging.
- Categorization (reporting, routing, prioritization).
- Prioritization (based on urgency and impact).
- Initial Diagnosis (service desk/Escalation).
- Investigation and Diagnosis.
- Resolution and Recovery.
- Closure (surveys, documentation, formal closure).

Ownership of incident remains with incident management. Incident Management process is owned and executed by service desk. KEDB is used by the Incident Management process to more rapidly resolve incidents.

## **PROBLEM MANAGEMENT**

To manage the lifecycle of all Problems. The primary objectives of Problem Management are to prevent incidents from happening, and to minimize the impact of incidents that cannot be prevented. It deals with the identification and correction of errors in the environment which cause incidents.

### **Objectives of Problem Management:**

- Minimizing the impact of Incidents that cannot be prevented.
- Preventing Problems and resulting Incidents from happening.
- Eliminating recurring Incidents.

Problem management regularly analyze incident data to identify trends. It is concerned with the identification and correction of errors in the environment which cause incidents. Once the root cause is identified Problem Management may issue a RFC to initiate action toward implementation of a permanent fix for the underlying cause of the incident.

2 major processes in problem management are Proactive and Reactive. Once the root cause of an incident is determined, Problem Management may issue a RFC to initiate action toward implementation of a permanent fix for the underlying cause of the incident. Problem management provides information to Incident Manager about problems, workarounds, and temporary fixes.

**Problem:** can be defined as the unknown cause of one or more incidents.

**Workaround:** It is the way of reducing the impact of an incident or problem for which a full resolution is not yet available.

**Known Error:** It is a problem that has a documented root cause and a workaround.

### **Reactive problem management:**

It is charged with responding to problems as they arise in the environment, driven by the Incident Management process.

### **Proactive Problem Management:**

It is charged with proactively seeking out improvements to services and infrastructure before incidents occur.

KEDB is a database containing all known error records. It is created by problem management and used by incident and problem management.

### **Activities associated with Problem Management**

- Detection.
- Logging.
- Categorization.
- Prioritization.
- Investigation and diagnosis.
- Resolution.

Output of problem management: Known error, work around, Resolutions.

## **REQUEST FULFILLMENT MANAGEMENT**

Request Fulfillment Management is the process that manages service requests received from the users. A service request, is a request that has a standard procedure for response and should be approved by Change Management.

Process owner is responsible for ensuring that the Request Fulfillment process is being performed according to the agreed and documented process. It deals with complaints, comments, and general enquiries from users.

Service request fulfillment can reduce the workload on the Incident Management process by providing a means of addressing non-incident related requests before they enter the Incident Management.

### **Objectives of Request Fulfillment**

- Maintain user and customer satisfaction
- Provide information to users and customers regarding availability of services.
- Assist with general info, complaints, and comments.

## **ACCESS MANAGEMENT**

To grant authorized users the right to use a service, while preventing access to non-authorized users. The Access Management processes execute policies defined in Information Security Management. Access Management helps to protect the Confidentiality, Integrity, and Availability of Assets by ensuring that only authorized Users are able to access the Assets.

Access management is responsible for providing the rights to use an IT service. To manage the right to use a service or group of services is the main objective of access management.

Concepts used in access management are Rights, access, identity, directory services, service/service components.

### **Activities of access management**

- Verifying the identity of users requesting access to services
- Setting the rights of systems to allow access to authorized users

## **APPLICATION LIFECYCLE MANAGEMENT**

During the Application Lifecycle Management process, the service provider is responsible for developing, enhancing, maintaining, and managing applications. This process employs a lifecycle to manage all activities related to the management of applications.

### **Service Desk Function:**

Service Desk is the primary point of contact for users when there is a service disruption, service request, or some categories of change request. The Service Desk provides a single point of communication between service users and the IT organization.

It validates the requests for access to a service and pass it to the right team, & update the user about the progress of the request. It provides a single point of contact for the users of IT. It logs incidents, service requests. The main task of service desk is to restore service ASAP.

### **Service desk organizational structure:**

- Local Service Desk
- Virtual Service Desk
- Follow the Sun
- Centralized Service desk

Local service desk: Co-located with the users.

Centralized service desk: No direct interaction with the users.

The Service Desk can often be used as a stepping stone for staff to move into other more technical or supervisory roles.

Service desk responsible for keeping the user informed about the situation when major incident happens.

Service desk primary point of contact for

- Requests
- Calls
- Complaints
- Questions

Main role of the Service Desk function to act as the single point of contact for users and customers. Centralized Service Desk is a single desk in one location serving the whole organization.

### **Activities performed by a service desk**

- Restoring services
- Logging details of incidents and service requests
- Providing first-line investigation and diagnosis
- Providing management information
- Incident management
- Recording incidents

### **Available to service desk**

- Known error data
- Support schedule
- Version control tool
- Incident data

- Change schedule
- diagnostic script & tools
- SKMS

Types of technical models considered when implementing service desk Expert, skilled, unskilled. Incident Management process is owned and executed by service desk.

### **Main duties of service desk**

- Deals with incidents
- To restore the service as quickly as possible
- To manage the incident life-cycle
- To generate reports, to communicate
- Change requests
- Service requests
- To support business activities

### **Service automation assists with expediting service:**

Service automation assists with expediting service management processes through capacity management, measurement automation, optimization, and knowledge capture.

IT organizations achieved better response times, decreased time to resolve issues, and increased service quality.

Service desk is helpful to assist this process.

### **TECHNICAL MANAGEMENT FUNCTION:**

The Technical Management function provides detailed technical skills and resources needed to support the ongoing operation of the IT Infrastructure. Technical Management also plays an important role in the design, testing, release, and improvement of IT services and is responsible for the daily operation of the IT infrastructure.

A Function that includes the groups, departments, or teams that provide technical expertise and overall management of the IT Infrastructure.



### **Application Management:**

The Application Management is responsible for managing applications throughout their lifecycle. The Application Management supports and maintains operational applications.

It is used to ensure that the required functionality is available to achieve the required business outcome.

### **IT Operations Management:**

It is concerned with the day-to-day maintenance of the IT service.

The IT Operations Management function is responsible for the daily operational tasks needed to manage the IT infrastructure according to the Performance Standards defined during Service Design.

To execute the ongoing activities and procedures required to manage and maintain the IT infrastructure so as to deliver and support IT services at the agreed levels.

The aim of IT Operations Management is to monitor and control the IT services and IT infrastructure. An IT Operations Manager will be needed to take responsibility for all of the IT Operations Management related activities.

IT Operations Management is responsible for monitoring activities and events in the IT Infrastructure.

### **IT operations management functions**

- IT Operations Control
- Facilities Management

### **Roles: Process Owner:**

Responsible for defining the process strategy, assisting the process design, ensure process documentation is available and current, auditing to ensure compliance.

Each process is owned by process owner, who is responsible for the process, its improvement and for ensuring it meets its objectives.

Change management process owner is responsible for defining key performance indicators (KPIs) for change management process.

Request Fulfillment Process Owner is responsible for ensuring that the Request Fulfillment process is being performed according to the agreed documented process.

### **Process owner is responsible for**

- Assisting with process design
- Defining the process strategy
- Improving the process
- Documenting the process
- Defining process Key Performance Indicators
- Ensuring process staff undertake the required training
- accountable for the output of the process
- To be accountable for the overall quality of a process and ensure that a process is fit for purpose.

### **Roles: Service Owner:**

Responsible for delivering the services across all areas in an effective and efficient manner.

### **Service owner Responsibility:**

- Prime contact for all service related enquiries and issues.
- Ensure the service is delivered to agreed service levels.
- Identifying opportunities for service improvement.
- Responsible for design, performance, integration, improvement, and management of a service
- Is accountable for a specific service within an organization
- Is a primary stakeholder in all of the underlying IT processes which support the service they own
- Is responsible for continual improvement and the management of change affecting the service they own

### **Process Manager:**

Process Manager is responsible for the operational management of a process.

The Process Manager is responsible for planning and coordinating all Process Management activities. They support all parties involved in managing and improving processes, in particular the Process Owners. They co-ordinate all changes to processes. They monitor the process metrics to suggest improvement.

### **Process Practitioner:**

Process practitioner is responsible for carrying out the process activity under the guidance of the process manager.

They identify opportunities for improvement

Co-ordinate with process stakeholders to ensure correctness

### **RACI Model:**

RACI model is used to define roles and responsibilities. It is useful in helping define roles and responsibilities in an organization structure.

It is an example of authority matrix. It is used to map the activities related to a process to the roles involved.

# RACI Definitions

**R**

- **Who is Responsible**
- The person who is assigned to do the work

**A**

- **Who is Accountable**
- The person who makes the final decision and has the ultimate ownership

**C**

- **Who is Consulted**
- The person who must be consulted before a decision or action is taken

**I**

- **Who is Informed**
- The person who must be informed that a decision or action has been taken

R - Responsible  
A - Accountable  
C - Consulted  
I - Informed

