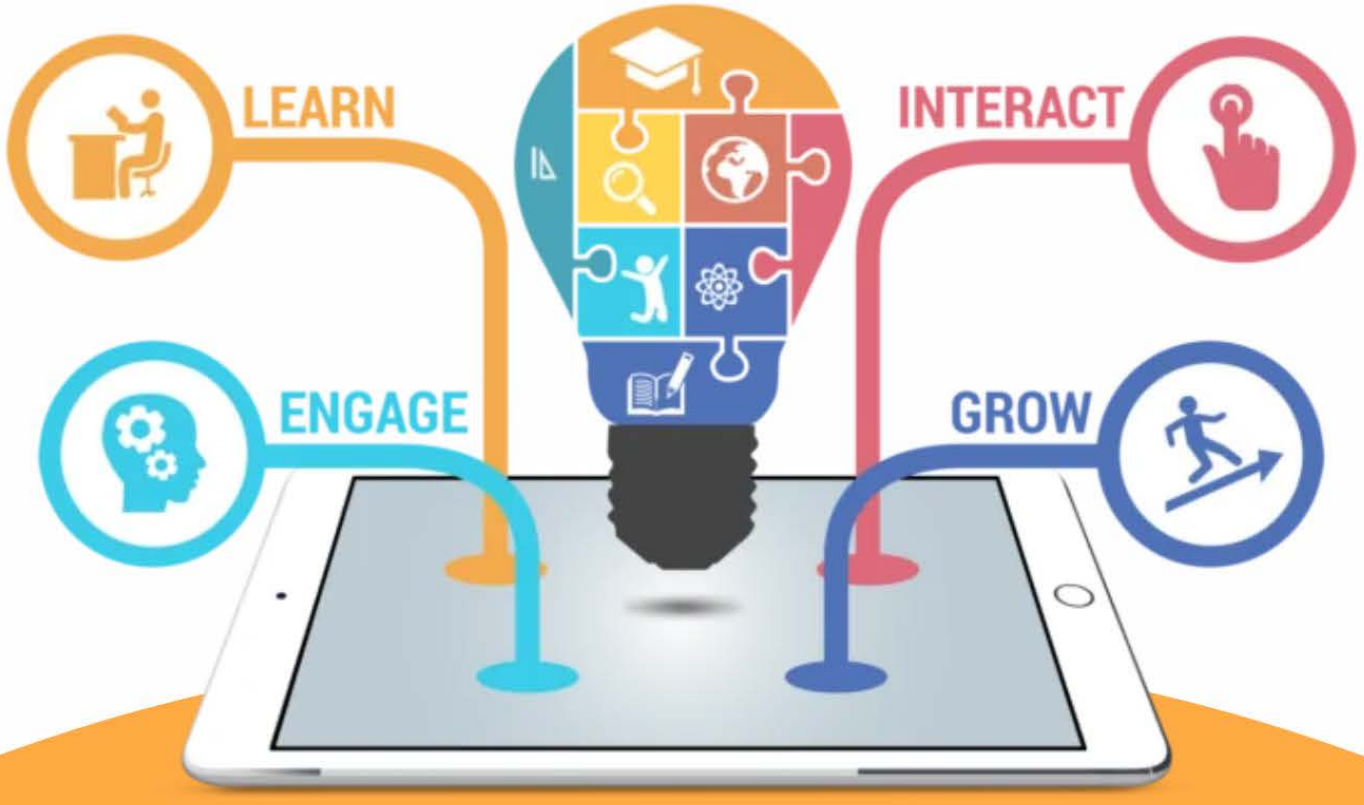
BSC-IT SEM 6

IT SERVICE MANAGEMENT



With lots of efforts, research, reviews we have launched the prerecorded series of academics for multiple universities, bundled in userfriendly application "The Shikshak"

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Students should do **topic-wise study** rather than question-wise study for several reasons:

1. **Comprehensive understanding**: Topic-wise study allows students to have a thorough understanding of a particular topic. It helps in building a strong foundation of knowledge on a subject. Once they have a good understanding of a particular topic, they can answer any question related to it.
2. **Efficient use of time**: When students study topic-wise, they can cover a range of questions related to a particular topic in one go. This way, they can utilize their time more efficiently instead of jumping from one question to another and losing focus.
3. **Better retention**: Studying a topic in-depth helps students retain the information for a longer time. It is because they learn the concepts in a logical sequence, making it easier for them to remember.
4. **Effective exam preparation**: Most exams are organized based on topics or units, so studying topic-wise will enable students to be well-prepared for the exam. They will have a good grasp of all the topics that will appear on the exam.
5. **Build analytical skills**: When students study topic-wise, they develop their analytical skills by understanding how various concepts in a subject connect with each other. This helps them develop a deeper understanding of the subject, making them better problem solvers.

In conclusion, studying topic-wise is more beneficial for students as it enables them to develop a better understanding of a subject, retain information better, utilize their time more efficiently, and be well-prepared for exams.

TheShikshak Edu App is an online learning platform that offers a range of resources and tools to help students pursuing BScIT and BScCS programs. Here are some ways in which TheShikshak Edu App can benefit BScIT and BScCS students:

1. **Comprehensive course material**: TheShikshak Edu App offers comprehensive course material for BScIT and BScCS students, covering all topics and concepts required in these programs.
2. **Track their progress** : analytics program helps student to know which topics are remaining and which are lowest watched lectures
3. **Expert guidance**: TheShikshak Edu App has a team of experienced instructors who provide expert guidance and support to students. Students can get their doubts clarified and receive personalized feedback on their performance.

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UNIT 1

CHAPTER 1 : IT Service Management

Introduction

- Information technologies (IT) enable, enhance, and are **embedded in a growing number of goods and services.**
- They are **connecting consumers and producers** of services in ways previously not feasible, while contributing to the productivity of numerous sectors of the services industry such as financial services, communications, insurance, and retail services
    - **Organizations exploit resources** as and when **needed without owning them**.
    - **Quality of service is no longer constrained** by the capacity of branches, stores, and other staffed locations.
    - Entrepreneurs and individuals **compose new services assembled from existing services** available in the commercial and public space.
    - **Service-oriented architectures are allowing** organizations to not only **reduce complexity** of their business applications and infrastructure but to further **exploit** such **assets in new ways.**
- **Things affecting Information technologies (IT) SERVICES**
    - First, issues **surrounding services are complex**.
    - Second, **customer specifications are not always clear**, certain or even correct.
- The **ultimate success of service management is indicated by the strength of the relationship between customers and service providers.**
- **successful service management provide guidance for:**
    - **Converting innovative ideas and concepts** into services for customers
    - **Solving problems** with effective and enduring solutions
    - **Controlling costs and risks** that can potentially destroy carefully created value
    - **Learning from successes** and failures to manage new challenges and opportunities.

Information technology and services

- Information technology (IT) is a commonly used term that changes meaning with context
    - IT/**Component** : **Components of systems and processes**
    - IT/**Organization** : Internal unit or **function of the enterprise** or commercial service provider
    - IT/**Service** : Type of shared **service utilized by business units**
    - IT/**Asset** : Capabilities and **resources that provide a dependable stream of benefits**

public frameworks and standards are relevant to service management:

- ISO/IEC 20000
- ISO/IEC 27001
- Capability Maturity Model Integration (CMMI®)
- Control Objectives for Information and related Technology (COBIT®)
- Projects in Controlled Environments (PRINCE2®)
- Project Management Body of Knowledge (PMBOK®)
- Management of Risk (M_o_R®)
- eSourcing Capability Model for Service Providers (eSCM-SP™)
- Telecom Operations Map (eTOM®)
- Six Sigma™.

Organizations find the need to integrate guidance from multiple frameworks and standards.

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- ITIL framework as a source of good practice in service management. **ITIL is used by organizations worldwide to establish and improve capabilities in service management.**
- ITIL offers a body of knowledge useful for achieving the standard.
- **The ITIL Library has the following components:**
    - The **ITIL Core**: best practice guidance **applicable to all types of organizations** who provide services to a business.
    - **consists of five publications**
        - **Service Strategy**
            - The Service strategy volume **provides guidance on how to design**, develop, and implement service management not only as an organizational capability but also as a *strategic asset*.
        - **Service Design**
            - The Service Design volume **provides guidance for the design and development** of services and service management processes.
        - **Service Transition**
            - The Service Transition volume **provides guidance for the development and improvement** of capabilities for transitioning new and changed services into operations.
        - **Service Operation**
            - This volume embodies practices in the management of service operations. It **includes guidance on achieving effectiveness and efficiency** in the delivery and support of services so as to ensure value for the customer and the service provider.
        - **Continual Service Improvement.**
            - This volume provides instrumental **guidance in creating and maintaining value for customers** through better design, introduction, and operation of services.
    - The **ITIL Complementary Guidance**: a complementary set of publications with guidance **specific to industry sectors, organization types**, operating models, and technology architectures.

What is service management?

- Service management is a **set of specialized organizational capabilities** for providing value to customers in the form of services.
- The capabilities take the **form of functions and processes** for managing services over a lifecycle, with specializations in strategy, design, transition, operation, and continual improvement.
- The capabilities represent a **service organization's capacity**, competency, and confidence for action.
- The act of **transforming resources into valuable services** is at the core of service management. Without these capabilities, a service organization is merely a bundle of resources that by itself has relatively low intrinsic value for customers.
- **Service management capabilities are influenced by the following challenges**
    - **Intangible nature of the output and intermediate products of service processes**: difficult to measure, control, and validate (or prove).
    - **Demand is tightly coupled with customer's assets**: users and other customer assets such as processes, applications, documents and transactions arrive with demand and stimulate service production.
    - **High-level of contact for producers and consumers of services**: little or no buffer between the customer, the front-office and back-office.

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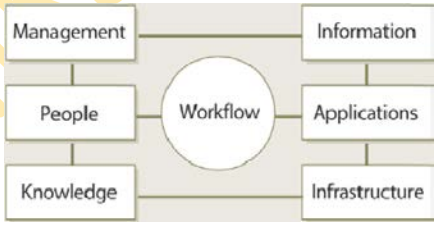
- **The perishable nature of service output and service capacity**: there is value for the customer in receiving assurance that the service will continue to be supplied with consistent quality. Providers need to secure a steady supply of demand from customers.

What are services

- **The value proposition**
  - Services are a means of delivering value to customers by **facilitating outcomes customers want to achieve without the ownership of specific costs and risks**.
  - Outcomes are possible from the **performance of tasks** and are **limited by the presence of certain constraints.**
  - **services facilitate outcomes by enhancing the performance and by reducing the grip** of constraints.
- **Value composition**
  - value consists of two primary elements: *utility* or fitness for purpose and *warranty* or fitness for use.
    - **Utility** is perceived by the customer from the attributes of the service that have a positive effect on the **performance of tasks associated** with desired outcomes.
    - **Warranty** is derived from the positive effect **being available when needed**, in sufficient capacity or magnitude, and dependably in terms of continuity and security.

The business process

- Business outcomes are produced by business processes **governed by objectives, policies and constraints.**
- The processes are **supported by resources including people, knowledge, applications and infrastructure.**
- Workflow coordinates the **execution of tasks and flow of control between resources, and intervening action** to ensure adequate performance and desired outcomes.
- **Business processes are particularly important from a service management perspective.**



- Processes are strategic assets when they create competitive advantage and market differentiation. As a result, business processes define many of the challenges faced by service management.
- **Business managers demand IT systems that make processes more transparent**, dynamically serving and expediting business process flows.

Principles of service management

- Service management has a set of principles to be used **for analysis, inference, and action** in various situations involving services.
- These principles complement the functions and processes described elsewhere in the ITIL Core Library. **When functions and processes are to be changed, these principles provide the necessary guidance and reference**.

Specialization and coordination

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- The aim of service management is to make available capabilities and resources useful to the customer in the highly usable form of services at **acceptable levels of quality, cost, and risks**.
- Service providers help relax the constraints on customers of ownership and control of specific resources.
- The **relationship between customers and service providers varies by specialization in ownership** and control of resources and the coordination of dependencies between different pools of resources

The agency principle

- Principals employ or **hire agents to act on their behalf** towards some specific objectives. Agents may be employees, consultants, advisors or service providers.
- Agents act on behalf of principals who provide objectives, resources (or funds), and constraints for agents to act on. They provide adequate sponsorship and support for agents to succeed on their behalf.

Encapsulation

- Encapsulation follows three separate but closely related principles: separation of concerns, modularity, and loose coupling.
- **Separation of concerns**
  - Complex issues or problems can be resolved or **separated into distinct parts** or concerns. Specialized capabilities and resources address each concern leading to better outcomes overall.
  - This improves focus and allows optimization
- **Modularity**
  - The functionality is available to other systems or **modules through interfaces**
  - Modularity is a structural principle **used to manage complexity** in a system
- **Loose coupling**
  - loose coupling, it is **easier to make changes internal** to the resource without adversely affecting utilization. It also avoids forcing changes on the customer's side, which can add unexpected costs to the customer.
  - Loose coupling requires good design, particularly of service interfaces, without which there will be more problems than benefits.

Principles of systems

A system is a group of interacting, interrelated, or interdependent components that form a unified whole, operating together for a common purpose.

- **Open-loop and closed-loop control processes**
  - **Open loop**
    - Control processes in which the value of the **outcome has no influence on the process input are open-loop**.
    - Changes in inputs result in changes in action.
    - Effectiveness of open-loop systems depends excessively on foresight in design of all possible conditions associated with outcomes
  - **Close loop**
    - Control processes in which the **value of the outcome has influence (with or without some delay)** on the process input in such a manner as to maintain the desired value are closed-loop.
    - Control action in closed loop systems is goal driven and sensitive to disturbances or deviations.

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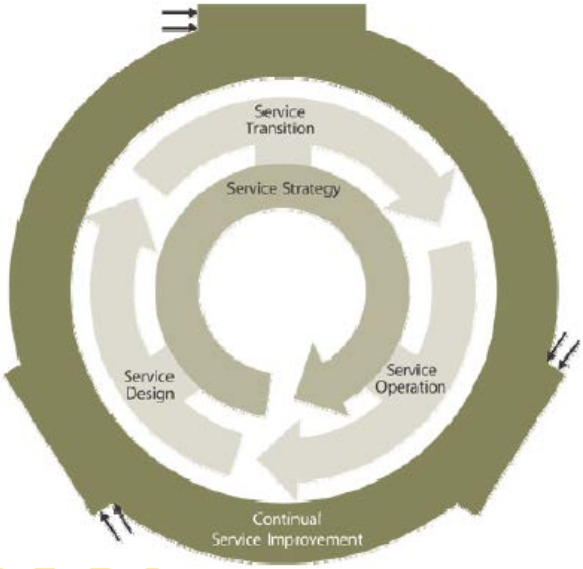
- **Feedback and learning**
  - Learning occurs from the presence of feedback as an **input to a process in one cycle based on performance or outcome in the previous cycle**. The feedback can be positive or self-reinforcing, leading to exponential growth or decline
  - Functions, processes, and organizations can have more than one feedback loop of each type. The interaction of the feedback loops drives the behavior of the process as it functions as a dynamic system.

The Service Lifecycle

- The architecture of the ITIL Core is based on a Service Lifecycle. Each volume of the core is represented in the Service Lifecycle
- **Service Design, Service Transition and Service Operation** are progressive phases of the Lifecycle that represent change and transformation.
- **Service Strategy** represents policies and objectives.
- **Continual Service Improvement** represents learning and improvement.



- Service Strategy (SS) is the axis around which the lifecycle rotates.
- Service Design (SD), Service Transition (ST), and Service operation (SO) implement strategy.
- Continual Service Improvement (CSI) helps place and prioritize improvement programmes and projects based on strategic objectives.

Lifecycle and systems thinking

- While feedback samples output to influence future action, structure is essential for organizing unrelated information.
- Without structure, our service management knowledge is merely a collection of observations, practices and conflicting goals.
- The structure of the Service Lifecycle is an organizing framework.
- Processes describe how things change, whereas structure describes how they are connected. Structure determines behaviour.
- Altering the structure of service management can be more effective than simply controlling discrete events.

Functions and processes across the Lifecycle

- **Functions**
  - **Functions are units of organizations specialized to perform certain types of work and be responsible for specific outcomes.**
  - They are self-contained with capabilities and resources necessary for their performance and outcomes. Capabilities include work methods internal to the functions. Functions have their own body of knowledge, which accumulates from experience. They provide structure and stability to organizations.
- **Processes**
  - Processes that provide transformation towards a goal, and utilize feedback for self-reinforcing and self-corrective action, function as closed-loop systems
  - Process definitions describe actions, dependencies and sequence. **Processes have the following characteristics:**
    - **Processes are measurable** – we are able to measure the process in a relevant manner.
    - **They have specific results** – the reason a process exists is to deliver a specific result.
    - **Processes have customers** – every process delivers its primary results to a customer or stakeholder.
    - **They respond to specific events** – while a process may be ongoing or iterative, it should be traceable to a specific trigger.

CHAPTER 2 : Service strategy principles

Value creation

- **Mind the gap**
  - Perceptions are also influenced by the customer's self-image or actual position in the market, such as those of being an innovator, market leader, and risk-taker.
  - The value of a service takes on many forms, and customers have preferences influenced by their perceptions. Definition and differentiation of value is in the customer's mind.
  - Customers are reluctant to buy when there is ambiguity in the cause-and-effect relationship between the utilization of a service and the realization of benefits.
- **Marketing mindset**
  - A marketing mindset begins with simple questions
    - What is our business?
    - Who is our customer?
    - What does the customer value?
    - Who depends on our services?
    - How do they use our services?
    - Why are they valuable to them?
  - Fitness for purpose comes from the attributes of the service that have a positive effect on the performance of activities, objects, and tasks associated with desired outcomes.
  - Fitness for use comes from the positive effect being available when needed, in sufficient capacity or magnitude, and dependably in terms of continuity and security.
- **Framing the value of services**
  - It is not good for the customer that there is **certainty in costs and uncertainty in utility** from one unit of output to another.
  - When the utility of a service is not backed up by warranty, customers worry about possible losses due to poor service quality more than the possible gains from receiving the promised utility.
  - The utility effect of a service is explained as the increase in possible gains from the performance of customer assets, leading to an increase in the probability of achieving outcomes

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- **Communicating utility**
  - The service provider undertakes to supply accurate, comprehensive, and current information on loan applicants in under a minute.
  - service providers support the business strategies of their customers by removing or relaxing certain types of constraints on business models and strategies. The constraints are of the **type that imposes specific costs and risks that customers wish to avoid**, as follows:
    - **Maintaining non-core and under-utilized assets**: customers would like to avoid ownership and control of assets which drain financial resources from core assets, and those used rarely or sporadically.
    - **Opportunity costs due to limited capacity and overloaded assets**: assets that are overloaded are unable to serve additional units of demand or accommodate unexpected surges in demand.
- **Communicating warranty**
  - Warranty ensures the utility of the service is available as needed with sufficient capacity, continuity and security. Customers cannot realize the promised value of a service that is fit for purpose when it is not fit for use.
  - **Warranty is stated in terms of the availability, capacity, continuity and security of the utilization of services.**
  - **Availability**
    - It assures the customer that services will be **available for use under agreed terms** and conditions.
  - **Capacity**
    - Capacity is an **assurance that the service will support a specified level** of business activity or demand at a specified level of quality.
  - **Continuity**
    - Continuity assures the service **will continue to support** the business through major failures or disruptive events.
  - **Security**
    - Security assures that the utilization of services by **customers will be secure**.

Service assets

- **Resources and capabilities**
  - Resources are direct inputs for production. Management, organization, people, and knowledge are used to transform resources
  - Capabilities represent an organization's ability to coordinate, control, and deploy resources to produce value. They are typically experience-driven, knowledge-intensive, information-based, and firmly embedded within an organization's people, systems, processes and technologies
- **Business units and service units**
  - **The business unit**
    - A business unit is simply a bundle of assets meant to **create value for customers** in the form of goods and services
    - Customers pay for the value they receive, which ensures that the business unit maintains an adequate return on assets.
  - **The service unit**
    - Service units are like business units, a bundle of service assets that specializes in **creating value in the form of services**
    - Services define the relationship between business units and service units. In many instances, business units (customers) and service units are part of the same organization.

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Service provider types

There are three archetypes of business models service providers:

- **Type I – internal service provider**
  - business **functions embedded within the business units** they serve. The business units themselves may be part of a larger enterprise or parent organization. Business functions such as **finance, administration**, logistics, human resources, and IT provide services required by various parts of the business.
- **Type II – Shared Services Unit**
  - Functions such as finance, IT, human resources, and **logistics are not always at the core of an organization**'s competitive advantage. Hence, they need not be maintained at the corporate level where they demand the attention of the chief
  - Instead, the services of such shared functions are consolidated into an autonomous special unit called a shared services unit (SSU)
- **Type III – external service provider**
  - The business strategies of customers sometimes require **capabilities readily available from a Type III provider**. The additional risks that Type III providers assume over Type I and Type II are justified by increased flexibility and freedom to pursue opportunities.
  - Type III **providers can offer competitive prices and drive down unit costs by consolidating demand.** Certain business strategies are not adequately served by internal service providers such as Type I and Type II.

Service structures

- **From value chains to value networks**
  - **value chain**
    - Business executives have long described the **process of creating value as links in a value chain.** This model is based on the industrial age production line: a series of value-adding activities connecting an organization's supply side with its demand side.
    - Each service provides value through a sequence of events leading to the delivery, consumption and maintenance of that particular service. By analysing each stage in the chain, senior executives presumably find opportunities for improvements.
    - They provide a strategy for vertically integrating and coordinating the dedicated assets required for product development.
  - **Value network**
    - service management as patterns of **collaborative exchanges**, rather than an assembly line, it is apparent that our idea of value creation is due for revision. From a **systems thinking perspective** it is more useful to think of service management as a value network or net
- **Service systems**
  - Services are often **characterized by complex networks of value flows and forms of value**, often involving many parties that influence each other in many ways. Value nets serve to communicate the model in a clear and simple way.
  - They are designed to leverage external capabilities. These sources complement the core enterprise within a business. **Despite many actors, the services operate with the efficiency of a self-contained enterprise, operating on a process rather than an organizational basis.**

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- The core enterprise is the central point of execution, rather than one actor in a chain, and is responsible for the whole value network. This includes the infrastructure by which other business partners can collaborate to deliver goods and services.
- **Intangible exchanges are not just activities that support the service; they are the service.**

Service strategy fundamentals

- **Fundamental aspects of strategy**
  - A level of comfort is necessary in **dealing with complexity**, uncertainty and conflict beyond the comfort zones of experience and codes of practice.
  - It is necessary to **discern patterns**, to project trends, and to estimate probabilities.
  - One must consider all factors including the **interactions** between them.
  - It is important to delve into underlying principles and when all else fails, it is often necessary to fall back on basic theory.
  - Successful strategies are based on the ability to take advantage of a set of distinct capabilities in **offering superior value to customers through services**.
  - A service strategy is sometimes thought of as a future course of action. When senior managers are asked to craft a strategy, the frequent response is a strategic plan detailing how the organization moves from its current state to a desired future state.
    - **The first problem** is **conditions change**. The pace of business change is quickening, no matter how large or small your organization or in what industry you compete.
    - **The second problem** is the **constant focus on improving operational effectiveness.** Operational effectiveness is absolutely necessary, but is not enough.
    - **The third problem** is '**value capture'**. Plans are not well suited to provide the ongoing insight needed to maintain a value capture capability.
    - **The three building blocks of high performance service providers:**
      1. **Market focus and position** – The spotlight is on optimal scale within a market space.
      2. **Distinctive capabilities** – The spotlight is on creating and exploiting a set of distinctive, hard-to-replicate capabilities that deliver a promised customer experience.
      3. **clear about what capabilities** really contribute to enhancing customer outcomes. Understand the need to build distinctive capabilities that are demonstrably better and, in the short term, difficult to replicate by competing alternatives.
- **Government and non-profit organizations**
  - Government and non-profit organizations appear to **operate in environments unaffected by the pressures of competition and markets**.
  - A government or non-profit organization's strategy, much like that of its commercial counterparts, explains how its **unique service approach will deliver better results** for society.
- **The Four Ps of strategy**
- The lifecycle has, at its core, service strategy. The entry points to service strategy are referred to as 'the Four Ps'
  - **Perspective** – describes a vision and direction. A strategic perspective articulates the business philosophy of interacting with the customer or the manner in which services are provided.
    - **Strategy as a perspective**
      - 'Focus on the user and all else will follow.'
      - 'It's all about growth, innovation and the dependency of technology, led by the greatest people anywhere.'

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- 'Consumer connectivity first – any time, anywhere.'

- **Position** – describes the decision to adopt a well-defined stance. Should the provider compete on the basis of value or low cost? Specialized or broad sets of services? Should value be biased towards utility or warranty?
  - **Strategy as a position**
    - **Variety-based positioning**
      - Variety-based positioning focuses on a particular variety of customers' needs and aims to meet them in distinctive fashion.
    - **Needs-based positioning**
      - In needs-based positioning, service providers choose to provide most or all of the needs of a particular type of customer
    - **Access-based positioning**
      - In access-based positioning, service providers distinguish themselves through their ability to serve customers with particular needs with respect to location, scale, or structures
- **Plan** – describes the means of transitioning from 'as is' to 'to be'. A plan might detail, 'How do we offer high-value or low-cost services?'
  - **Strategy as a plan**
    - Strategy as a plan is a course of action from one point to another within a competitive scenario. Often referred to as an intended strategy, it is the deliberate course of action charting a path towards strategic objectives
- **Pattern** – describes a series of consistent decisions and actions over time.
  - **Strategy as a pattern**
    - Strategy as a pattern is an organization's fundamental way of doing things.

CHAPTER 3 : Service strategy

Define the market

- **Services and strategy**
  - Organizations have an interest in strategy within the context of service management in two distinct but related perspectives.
  - There are **strategies for services** and there are **services for strategies**.
  - From one perspective, **strategies are developed for services offered**. Providers differentiate their services from competing alternatives available to customers.
  - From the other perspective, **service management is a competence for offering services** as part of a business strategy.
- **Understand the customer**
  - The performance of customer assets should be a **primary concern of service management** professionals because without customer assets there is no basis for defining the value of a service.
- **Understand the opportunities**
  - Customers own and operate configurations of assets to create value for their own customers. The assets are the means of **achieving outcomes that enable or enhance value creation**.
- **Classify and visualize**
  - visual method can be **useful in communication and coordination between functions and processes** of service management. These visualizations are the basis of more formal definitions of services. Proper matching of the value creating context (customer assets) with the value-creating concept (service archetype) can avoid shortfalls in performance.

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Develop the offerings

- **Market space**
  - A market space is defined by a set of business outcomes, which can be facilitated by a service. The **opportunity to facilitate those outcomes** defines a market space.
- **Outcome-based definition of services**
  - An outcome-based definition of services **ensures that managers plan and execute all aspects** of service management entirely from the perspective of what is valuable to the customer. Such an approach ensures that services not only create value for customers but also capture value for the service provider.
- **Service Portfolio, Pipeline and Catalogue**
  - The Service **Portfolio represents the commitments and investments** made by a service provider across all customers and market spaces. It represents present contractual commitments, new service development, and ongoing service improvement plans initiated by Continual Service Improvement
  - **Service Catalogue**
    - The Service Catalogue is the subset of the Service Portfolio visible to customers. It consists of **services presently active** in the Service Operation phase and those approved to be readily offered to current or prospective customers.
  - **Service Pipeline**
    - The Service Pipeline consists of **services under development** for a given market space or customer.
  - **Retired services**
    - Some services in the Catalogue are phased out or retired. Phasing **out of services** is part of Service Transition
  - **The role of Service Transition**
    - Service Transition is necessary to **add or remove services** from the Service Catalogue.

Develop strategic assets

Service providers should treat service management as a strategic asset and entrust it with challenges and opportunities in terms of customers, services, and contracts to support. Investments made in trusted assets are less risky because they have the capability to deliver consistently time and again.

- **Service management as a closed-loop control system**
  - The capabilities interact with each other to function as a system for creating value. Service assets are the source of value and customer assets are the recipients.
  - Services have the potential to increase the performance of customer assets and create value to the customer organization.
  - Improvements in the design, transition and operation of the service increase this customer performance potential and reduce the risks of variations on customer assets.
  - **service management is a closed-loop control system with the following functions**, to:
    - Develop and maintain service assets
    - Understand the performance potential of customer assets
    - Map service assets to customer assets through services
    - Design, develop, and operate suitable services
    - Extract service potential from service assets
- **Service management as a strategic asset**
  - To develop service management as a strategic asset**, define the value network within which service providers operate in support of their customers**.
  - **Increasing the service potential**

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- The capabilities and resources (service assets) of a service provider represent the service potential or the **productive capacity available to customers through a set of services**.

- **Increasing performance potential**
  - The services offered by a service provider represent the **potential to increase the performance** of customer assets. Without this potential there is no justification for customers to procure the services
  - The performance potential of services is increased primarily by having the right mix of services to offer to customers, and designing those services to have an impact on the customer's business.
  - **The key questions to be asked are:**
    - What is our market space?
    - What does that market space want?
    - Can we offer anything unique in that space?
    - Is the space already saturated with good solutions?
    - Do we have the right portfolio of services developed for a given market space?
    - Do we have the right catalogue of services offered to a given customer?
    - Is every service designed to support the required outcomes?
    - Is every service operated to support the required outcomes?
    - Do we have the right models and structures to be a service provider?
- **Demand, capacity and cost**
  - increasing the performance potential of customer assets there is an increase in the demand for the services. This acts as a positive feedback to the system to be taken into account. An increase in the performance potential leads to an increase in customer demand.
  - As the maturity of service management increases, it is possible to deliver higher levels of utility and warranty without a proportional increase in costs.

Prepare for execution

- **Strategic assessment**
  - Are there services that the business or customer cannot easily substitute? The differentiation can come in the form of barriers to entry, such as the organization's know-how of the customer's business or the broadness of service offerings.
  - Which of our services or service varieties are the most profitable?
  - Which of our customers and stakeholders are the most satisfied?
  - **basis of a strategic assessment?**
    - Strength and weaknesses, Critical success factors, Threats and opportunities
- **Setting objectives**
  - Objectives represent the results expected from pursuing strategies, while strategies represent the actions to be taken to accomplish objectives.
- **Aligning service assets with customer outcomes**
  - Service providers must manage assets much in the same manner as their customers. Service assets are coordinated, controlled, and deployed in a manner that maximizes the value to customers while minimizing risks and costs for the provider.
- **Defining critical success factors**

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- For every market space there are critical success factors that determine the success or failure of a service strategy. These factors are influenced by customer needs, business trends, competition, regulatory environment, suppliers, standards, industry best practices and technologies.
- They are defined in terms of capabilities and resources
- They are proven to be key determinants of success by industry leaders
- They are defined by market space levels, not peculiar to any one firm

CHAPTER 4 : Challenges, Critical Success factors and risks

Complexity

- A complex system is characterized by organized complexity, as opposed to disorganized complexity (random systems) or organized simplicity (simple systems).
- Complex systems behave differently from simple systems and pose unusual challenges. They are tightly coupled. They are adaptive and self-organizing. Organizations do not' always have the ability to observe the long-term consequences of their decisions and actions.
- They generally fail to appreciate the time delay between action and response. They are often caught in a vicious cycle of reacting to events and attempting to predict them, rather than learning from them.
- Without continual learning, over a far enough horizon, today's solutions often cause tomorrow's problems.
- break services down into discrete processes managed by different groups with specialized knowledge, experience and resources.
- The systems view led designers to move beyond simply continual improvements in materials science and manufacturing to the counterintuitive idea

Coordination and Control

- Decision-makers in general have limited time, attention span and personal capacity. They delegate roles and responsibilities to teams and individuals who specialize in specific systems, processes, performance and outcomes
- principle of division of labor with managers acting as principals and their subordinates acting as agents.
- Specialization allows for development of in-depth knowledge, skills and experience. It also allows for innovation, improvements and changes to occur within a controlled space.
- Service management is a coherent set of specialized competencies defined around processes and lifecycle phases. An increase in the level of specialization leads to a corresponding increase in the need for coordination. This is a major challenge in service management because of the level of specialization needed for various phases of the Service Lifecycle, processes and functions. Coordination can be improved with cooperation and control between teams and individuals.
- Cooperation problems involve finding a way to align groups with divergent and possibly conflicting interests and goals, to cooperate for mutual benefit.
- coordination and control is achieved with the use of shared processes that integrate groups and functions, shared applications that integrate processes, and shared infrastructure that integrates applications

Preserving Value

- Mature customers care not only about the utility and warranty they receive for the price they are being charged.
- They also care about the total cost of utilization (TCU). The concept of TCU is based on the principle of transaction costs. Customers perceive not just the direct costs of actual consumption but also all other related costs incurred indirectly in the process of receiving the committed utility and warranty.

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- Poor management of services over the lifecycle can result in customers paying much more than the price of the service when the effect of hidden costs sets in. The enduring value for customers turns out to be much lower than the value created. Eliminating hidden costs is a challenge, a critical success factor and a risk. There is a need to reduce the total losses in the system.

Effectiveness in Measurement

- Organizations have long understood the Deming principle: **if we cannot measure it, we cannot manage it.**
- the measurements of seasoned organizations emphasize control at the expense of customer response.
- Measurements focus the organization on its strategic goals, tracking progress and providing feedback.
- Risk is defined as uncertainty of outcome, whether positive opportunity or negative threat. Managing risks requires the identification and control of the exposure to risk, which may have an impact on the achievement of an organization's business objectives.
- Every organization manages its risk, but not always in a way that is visible, repeatable and consistently applied to support decision making.
- The task of management of risk is to ensure that the organization makes cost-effective use of a risk framework that has a series of well-defined steps.
- **There are two distinct phases: risk analysis and risk management.**
    - **Risk Analysis** : Risk analysis is concerned with **gathering information about exposure** to risk so that the organization can make appropriate decisions and manage risk appropriately.
    - **Risk Management**: Management of risk involves having processes in place to monitor risks, access to reliable and up-to-date information about risks, the **right balance of control in place** to deal with those risks, and decision-making processes supported by a framework of risk analysis and evaluation.

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UNIT 2

CHAPTER 1: Service Design

Fundamentals:

Service Design principles

GOALS

- **satisfy business objectives**, based on the quality, compliance, risk and security requirements, delivering more effective and efficient IT and business solutions
- easily and efficiently developed and enhanced within **appropriate timescales and costs** and, wherever possible, reduce, minimize or constrain the long-term costs.
- **efficient and effective processes for the design**, transition, operation and improvement of high-quality IT services Identify and manage risks
- Design secure and resilient IT infrastructures, environments, applications and data/information resources and **capability that meet the current and future needs** of the business and customers
- Design measurement methods and metrics for assessing the effectiveness and **efficiency of the design processes** and their deliverables
- **Produce and maintain IT plans**, processes, policies, architectures, frameworks.
- **Assist in the development of policies and standards** in all areas of design
- **Develop the skills and capability within IT** by moving strategy and design activities into operational tasks improvement of the overall quality of IT service within the imposed design constraints, especially by reducing the need for reworking

BALANCED DESIGN

- **Functionality**: the service or product and its facilities, functionality and quality, including all of the management and operational functionality required
- **Resources**: the people, technology and money Available
- **Schedule**: the timescales.
- This concept is extremely important to Service Design activities and to the balance between the effort that is spent in the design, development and delivery of services in response to business requirements. Service Design is a delicate balancing act of all three elements and the constant dynamic adjustment of all three to meet changing business needs.
- **Which design activities needs to ensure?**
    - **Good communication** between the various design activities and all other parties
    - The **latest versions** of all appropriate business and IT plans and strategies are available to all designers All of the architectural documents and design documents are consistent with all business and IT policies and plans

IDENTIFYING SERVICE REQUIREMENTS

- service and its constituent **components and their inter-relationships**, ensuring that the services delivered meet the functionality and quality of service expected by the business in all areas:
- The **scalability of the service** to meet future requirements, in support of the long-term business objectives
- The business processes and business **units supported** by the service
- The IT service and the agreed **business functionality and requirements**
- The service itself and its **Service Level Requirement** (SLR) or **Service Level Agreement** (SLA)
- The technology components used to deploy and deliver the service, including the infrastructure, the environment, the data and the applications
- The **performance measurements** and metrics required

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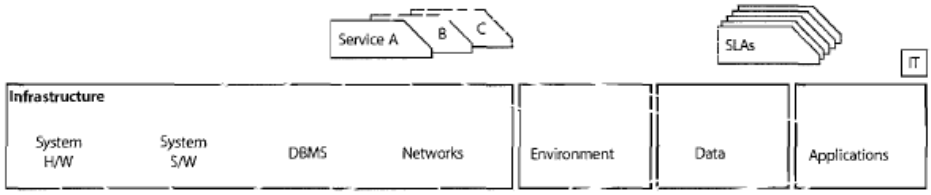
- **Four separate technology domains that will need to be addressed**



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

IDENTIFYING AND DOCUMENTING BUSINESS REQUIREMENTS AND DRIVERS

- IT must retain accurate information on business requirements and drivers if it is to provide the most appropriate catalogue of services with an acceptable level of service quality that is aligned to business needs.
- Business drivers are the people, information and tasks that support the fulfilment of business objectives.
  - **Information on the requirements of existing Services**
    - New facilities and functionality requirements
    - Changes in business processes, dependencies, priorities, criticality and impact
    - Changes in volumes of service transactions
  - **Information on the requirements of new services**
    - Facilities and functionality required
    - Management information required and management needs
    - Business processes supported, dependencies, priorities, criticality and impact
    - Business cycles and seasonal variations
- **business requirements stage should consist of:**
  - Appointment of a project manager, the creation of a project team and the agreement of project governance by the application of a formal, structured project methodology
  - Identification of all stakeholders, including the documentation of all requirements from all stakeholders
  - Requirements analysis, prioritization, agreement and Documentation
  - Determination and agreement of outline budgets and business benefits.
  - Resolution of the potential conflict between business units and agreement on corporate requirements Development of a customer engagement plan.
  - outlining the main relationships between IT and the business and how these relationships and necessary communication to wider stakeholders will be managed.

DESIGN ACTIVITIES

- All design activities are triggered by changes in business needs or service improvements.
- The **design processes activities** are:
  - Requirements collection, analysis and engineering

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- Design of appropriate services, technology, processes, Information
- Review and revision of all processes and documents
- Production and maintenance of IT policies and design
- Risk assessment and management of all design
- Ensuring alignment with all corporate and IT strategies and policies

- **inputs to the various design activities are:**
  - Corporate visions, strategies, objectives, policies and plans, business visions, strategies, objectives and plans,
  - including Business Continuity Plans (BCPs)
  - Constraints and requirements for compliance with legislated standards and regulations
  - IT strategies and strategic documents
  - Measurement tools and techniques.
- **(output)deliverables from the design activities are:**
  - Suggested revisions to IT strategies and policies
  - Revised designs, plans and technology and management architectures
  - Designs for new or changed services, processes and Technologies
  - Revised measurement methods and processes
  - Managed levels of risk, and risk assessment and management reports

DESIGN ASPECTS

The key aspect is the design of new or changed service solutions to meet changing business needs. Every time a new service solution is produced, it needs to be checked against each of the other aspects to ensure that it will integrate and interface with all of the other services already in existence.

- **Designing service solutions**
  - This process must be iterative/incremental to ensure that the service delivered meets the evolving and changing needs of the business during the business process development and the IT Service Lifecycle. Additional project managers and project teams may need to be allocated to manage the stages within the lifecycle for the deployment of the new service.
  - **service solution should include:**
    - Analyze the agreed business requirements
    - Review the existing IT services and infrastructure and produce alternative service solutions, Design the service solutions to the new requirements, including their constituent components Evaluate and cost alternative designs, highlighting advantages as well as disadvantages of the alternatives
    - Agree the expenditure and budgets
- **Designing supporting systems, especially the Service Portfolio**
  - The Service Portfolio is the most critical management system used to support all processes and describes a provider's services in terms of business value. It articulates business needs and the provider's response to those needs.
  - **Service Portfolio should include:**
    - **Requirements**: a set of outline requirements have been received from the business or IT for a new or changed service
    - **Defined**: the set of requirements for the new service are being assessed, defined and documented and the SLR is being produced
    - **Analyzed**: the set of requirements for the new service are being analyzed and prioritized
    - **Approved**: the set of requirements for the new service have been finalized and authorized

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  - **Developed**: the service and its constituent components are being developed or harvested, if applicable
  - **Built**: the service and its constituent components are being built
  - **Test**: the service and its constituent components are being tested
  - **Retired**: the service and its constituent components have been retired
- **Designing technology architectures**
  - concerned with providing the overall strategic 'blueprints' for the development and deployment of an IT infrastructure - a set of applications and data that satisfy the current and future needs of the business.
  - **Business Architecture and should include the following major areas:**
    - **Service Architecture,** which translates applications, infrastructure, organization and support activities into a set of services.
    - **Application Architecture,** which provides a blueprint for the development and deployment of individual
    - applications, maps business and functional requirements on to applications, and shows the interrelationships between applications.
    - **Data/Information Architecture,** which describes the logical and physical data assets of the enterprise and the data management resources.
    - **IT Infrastructure Architecture,** which describes the structure, functionality and geographical distribution of the hardware, software and communications components that underpin and support the overall architecture, together with the technical standards applying to them.
    - **Environmental Architecture,** which describes all aspects, types and levels of environment controls and their management
- **Designing processes**
  - A process is a structured set of activities designed to accomplish a specific objective. A process takes one or more inputs and turns them into defined outputs. A process includes all of the roles, responsibilities, tools and management controls required to reliably deliver the outputs.
- **Design of measurement systems and Metrics**
  - In order to manage and control the design processes, they have to be monitored and measured.
  - **In all the design activities the requirement should be to:**
    - Design solutions that are 'fit for purpose'
    - Design for the appropriate level of quality - not overengineered or under-engineered
    - Design solutions that are 'right first time' and meet their expected targets
    - **There are four types of metrics that can be used to measure the capability and performance of processes:**

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

THE SUBSEQUENT DESIGN ACTIVITIES

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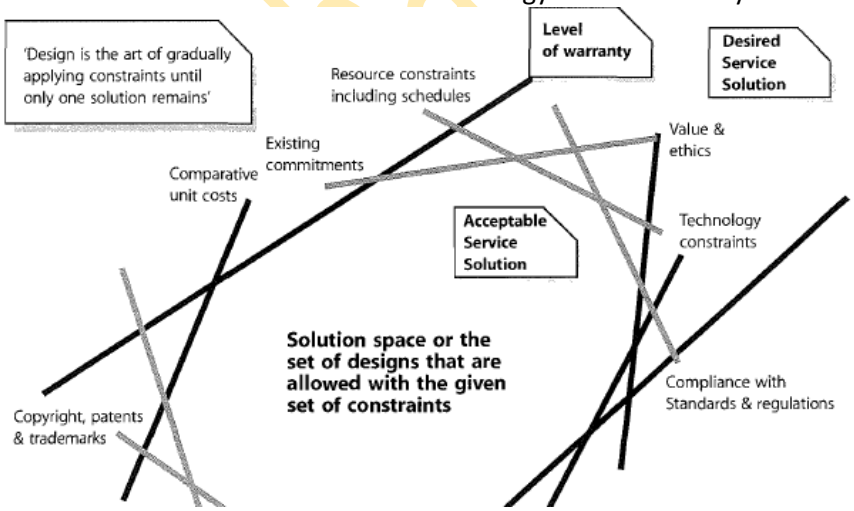
- Once the desired service solution has been designed, then the subsequent activities must also be completed with the Service Design stage before the solution passes into the Service Transition stage.
- **Evaluation of alternative solutions**
  - Selecting a set of suppliers and completing a tendering process.
  - Evaluation and review of supplier responses and selection of the preferred supplier(s) and their proposed solution(s).
  - Evaluation and costing of the alternative designs, possibly including identification of potential suppliers and evaluation of their alternative proposals, technologies, solutions and contracts.
- **Procurement of the preferred solution**
  - Completing all necessary checks on the preferred Supplier
  - Finalizing the terms and conditions of any new contracts, ensuring that all corporate policies are enforced
- **Develop the service solution**
  - The development stage consists of translating the Service Design into a plan for the development, re-use or redevelopment of the components required to deliver the service and the subsequent implementation of the developed service.
- **components of the service**
  - The needs of the business
  - The strategy to be adopted for the development and or purchase of the solution
  - The timescales involved
  - Service and component test plans.

DESIGN CONSTRAINTS

- constraints come from the business and Service Strategy and cover many different areas.



SERVICE ORIENTED ARCHITECTURE

- Business process and solutions should be designed and developed using a Service Oriented Architecture (SOA) approach.
- The SOA approach is considered best practice and is used by many organizations to improve their effectiveness and efficiency in the provision of IT services.
- IT service provider organizations should use the SOA and principles to develop flexible, re-usable
- IT services that are common and can be shared and exploited across many different areas of the business.
- **When this approach is used, it is essential that IT:**

- Defines and determines what a service is
- Understands and clearly identifies interfaces and dependencies between services
- Uses common technology and tool-sets

BUSINESS SERVICE MANAGEMENT

- Business Service Management (BSM) is a strategy and an approach to enable IT components to be linked to the goals of the business. This way the impact of technology on the business and how business change may impact technology can both be predicted.
- **BSM enables an IT service provider organization to:**
  - Align IT service provision with business goals and Objectives
  - Prioritize all IT activities on business impact and urgency, ensuring critical business processes and services receive the most attention
  - Increase business productivity and profitability through the increased efficiency and effectiveness of IT processes

SERVICE DESIGN MODELS

- The model selected for the design of IT services will depend mainly on the model selected for the delivery of IT services. Before adopting a design model for a major new service, a review of the current capability and provisions with respect to all aspects of the delivery of IT services should be conducted.
- **This review should consider all aspects of the new service, including the:**
  - Business drivers and requirements
  - Scope and capability of the existing service provider Unit
  - Demands, targets and requirements of the new service
  - Scope and capability of external suppliers
  - Culture of the organizations involved
- **Delivery model options**
  - **Insourcing**
    - This approach relies on utilizing internal organizational Resources
  - **Outsourcing**
    - This approach utilizes the resources of an external organization or organizations
  - **Business Process Outsourcing (BPO)**
    - The increasing trend of relocating entire business functions using form al arrangements between organizations where one organization provides and manages the other organization's entire business process(es) or functions(s) in a low-cost location.
- **Design and development options**
- **Design and development approaches**
  - Rapid Application Development
  - Off-the-shelf solutions

Chapter 2: Service Design processes

These processes are principally responsible **for providing key information to the design of new or changed service solutions**. There are five aspects of design that need to be considered:

- **The design of the services**, including all of the **functional requirements, resources and capabilities needed and agreed.**

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- **The design of Service** Management systems and tools, especially the Service Portfolio, for the management and control of services through their lifecycle.
- The **design of the technology architectures** and management systems required to provide the services.
- The **design of the processes needed to design, transition, operate and improve** the services, the architectures and the processes themselves.
- The **design of the measurement methods** and metrics of the services, the architectures and their constituent components and the processes.

SERVICE CATALOGUE MANAGEMENT

Purpose/goal/objective

- The **purpose of Service Catalogue Management** is to provide a single source of consistent information on all of the agreed services, and ensure that it is widely available to those who are approved to access it.
- The goal of the Service Catalogue Management process is to **ensure that a Service Catalogue is produced and maintained**, containing accurate information on all operational services and those being prepared to be run operationally.
- The objective of Service Catalogue Management is to manage the information contained within the Service Catalogue, and to ensure that it is accurate and reflects the current details, status, interfaces and dependencies of all services that are being run, or being prepared to run, in the live environment.
- Service Catalogue Management activities should include:
  Definition of the service
  Production and maintenance of an accurate Service Catalogue Interfaces, dependencies and consistency between the Service Catalogue and Service Portfolio.
  The service catalog has two aspects:
  - **Business Service Catalog (BSC)** : It containing details of all the IT services delivered to the customer, together with relationships to the business units and the business process that rely on the IT services. This is the customer view of the Service Catalogue
  - **Technical Service Catalog (TSC)** : It containing details of all the IT services delivered to the customer, together with relationships to the supporting services, shared services, components and (Configuration Items) CIs necessary to support the provision of the service to the business. This should underpin the Business Service Catalogue and not form part of the customer view.

Process activities, methods and Techniques

- The key activities within the Service Catalogue Management process should include:
- **Agreeing and documenting** a service definition with all relevant parties
- **Interfacing with Service Portfolio** Management to agree the contents of the Service Portfolio and Service Catalogue
- **Producing and maintaining a Service Catalogue** and its contents, in conjunction with the Service Portfolio

SERVICE LEVEL MANAGEMENT

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Service Level Management (SLM) negotiates, agrees and documents appropriate IT service targets with representatives of the business, and then monitors and produces reports on the service provider's ability to deliver the agreed level of service.

Purpose/goal/objective

- The goal of the Service Level Management process is to **ensure that an agreed level of IT service is provided for all current IT services**, and that future services are delivered to agreed achievable targets.
- Proactive measures are also taken to **seek and implement improvements** to the level of service delivered.
- The purpose of the SLM process is to **ensure that all operational services and their performance** are measured in a consistent, professional manner throughout the IT organization, and that the services and the reports produced meet the needs of the business and customers.
- The **objectives of SLM** are to:
    - Define, document, agree, monitor, measure, report and review the level of IT services provided.
    - Provide and **improve the relationship** and communication with the business and customers.
    - Ensure that specific and **measurable targets** are developed for all IT services.
    - Monitor and **improve customer satisfaction** with the quality of service delivered.

- The **SLM processes should include** the:
    - Development **of relationships with the business**
    - **Negotiation and agreement of current requirements and targets**, and the documentation and management of (Service Level Agreement) SLAs for all operational services
    - Negotiation and agreement of future requirements and targets, and the documentation and management of (Service Level Requirements) SLRs for all proposed new or changed services
    - Development and management of appropriate Operational Level Agreements (OLAs) to ensure that targets are aligned with SLA targets

- **Service Level Agreements:** A Service Level Agreement (SLA) is "**A written agreement between an IT Service Provider and IT customers**".
- **Operational Level Agreement:** The OLA defines the **goods or services to be provided** and the responsibilities of both parties.
- **Underpinning Contracts**: Underpinning Contract (UC) - a **legally binding agreement between an IT Service Provider** and a third party, called the supplier.

Process activities, methods and Techniques

- **Determine, negotiate, document** and agree requirements for new or changed services in SLRs, and manage and review them through the Service Lifecycle into SLAs for operational services.
- **Monitor and measure** service performance achievements of all operational services against targets within SLAs.
- Collate, **measure and improve customer satisfaction.**
- **Produce service reports.**

Designing SLA frameworks

- ***Service-based SLA***
  This is where an SLA covers one service, for all the customers of that service - for example, an SLA may be **established for an organization's** e-mail service – covering all the customers of that service.
- ***Customer-based SLA***

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

- ***Multi-level SLAs***
    - **Corporate level:** covering all the generic SLM issues appropriate to every customer throughout the organization.
    - **Customer level:** covering all SLM issues relevant to the particular customer group or business unit, regardless of the service being used
    - **Service level:** covering all SLM issues relevant to the specific service, in relation to a specific customer group (one for each service covered by the SLA).

CAPACITY MANAGEMENT

- Capacity Management is a process that extends across the Service Lifecycle.
- A key success factor in **managing capacity is ensuring it is considered during the design stage**.

Purpose/goal/objective

- The purpose of Capacity Management is to **provide a point of focus and management for all capacity- and performance-related issues**, relating to both services and resources.
- The goal of the Capacity Management process is **to ensure that cost-justifiable** IT capacity in all areas of IT always exists and is matched to the current and future agreed needs of the business, in a timely manner.
- **The objectives of Capacity Management are to:**
    - **Produce and maintain an appropriate and up-to-date.**
    - Capacity Plan, which **reflects the current and future needs** of the business.
    - **Provide advice and guidance** to all other areas of the business and IT on all capacity- and performance related issues.
    - Assist with the diagnosis and **resolution of performance- and capacity-related incidents and problems.**
    - Ensure that **proactive measures** to improve the performance of services are implemented wherever it is cost-justifiable to do so.
- **Capacity Management is essentially a balancing act**:
    - **Balancing costs against resources needed:** the need to ensure that processing capacity that is purchased is cost-justifiable in terms of business need, and the need to make the most efficient use of those resources.
    - **Balancing supply against demand:** the need to ensure that the available supply of IT processing power matches the demands made on it by the business, both now and in the future. It may also be necessary to manage or influence the demand for a particular resource.
- **The proactive activities of Capacity Management should include:**
    - Pre-empting performance issues by taking the necessary actions before they occur
    - Producing trends of the current component utilization and estimating the future requirements, using trends and thresholds for planning upgrades and enhancements
    - Modelling and trending the predicted changes in IT services, and identifying the changes that need to be made to services and components of the IT infrastructure and applications to ensure that appropriate resource is available.
- **The reactive activities of Capacity Management should include:**
    - Monitoring, measuring, reporting and reviewing the current performance of both services and components

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- Responding to all capacity-related 'threshold' events and instigating corrective action

- ***Service Capacity Management***
  The Service Capacity Management sub-process ensures that the services meet the agreed capacity service targets.
- ***Component Capacity Management***
  The main objective of Component Capacity Management (CCM) is to identify and understand the performance, capacity and utilization of each of the individual components within the technology used to support the IT.
- ***The underpinning activities of Capacity Management***
  - support the sub-processes of Capacity Management
  - The major difference between the sub-processes is in the data that is being monitored and collected, and the perspective from which it is analyzed.
- ***Threshold management and control***
  The technical limits and constraints on the individual services and components can be used by the monitoring activities to set the thresholds at which warnings and alarms are raised and exception reports are produced.
- ***Demand Management***
  The prime objective of Demand Management is to influence user and customer demand for IT services and manage the impact on IT resources.
- ***Modelling and trending***
  Modelling is an activity that can be used to beneficial effect in any of the sub-processes of Capacity Management.
- ***Application sizing***
  Application sizing has a finite lifespan. It is initiated at the design stage for a new service, or when there is a major change to an existing service, and is completed when the application is accepted into the live operational environment.

AVAILABILITY MANAGEMENT

- **Purpose/goal/objective**
  The goal of the Availability Management process 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.
  The **purpose** of Availability Management is to provide a point of focus and management for all availability-related issues, relating to both services and resources, ensuring that availability targets in all areas are measured and achieved.
- **Objectives** of Availability Management
  - Produce and maintain an appropriate and up-to-date.
  - Availability Plan that reflects the current and future needs of the business.
  - Assist with the diagnosis and resolution of availability related incidents and problems.
- The **scope** of the Availability Management process covers the design, implementation, measurement, management and improvement of IT service and component availability
- **Availability Management process should include**
  - Monitoring of all aspects of availability, reliability and maintainability of IT services and the supporting components, with appropriate events, alarms and escalation, with automated scripts for recovery.
  - **Maintenance of a set of methods, techniques and calculations for all availability measurements, metrics and reporting**.
  - Assistance with risk assessment and management Activities

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- **Availability Management process, consisting of both the reactive and proactive activities**
  - **Reactive activities:** the reactive aspect of Availability Management involves the monitoring, measuring, analysis and management of all events, incidents and problems involving unavailability. These activities are principally involved within operational roles.
  - **Proactive activities:** the proactive activities of Availability Management involve the proactive planning, design and improvement of availability. These activities are principally involved within design and planning roles.

Availability Management is completed at two interconnected levels:

- **Service availability:** involves all aspects of service availability and unavailability and the impact of component availability, or the potential impact of component unavailability on service availability.
- **Component availability:** involves all aspects of component availability and unavailability.

Availability Management relies on the monitoring, measurement, analysis and reporting of the following aspects:

- **Availability:** the ability of a service, component or CI to perform its agreed function when required. It is often measured and reported as a percentage:

$$\text{Availability (\%)} = \frac{\text{(Agreed Service Time (AST) – downtime)}}{\text{Agreed Service Time (AST)}} \times 100\ \%$$

- **Reliability:** a measure of how long a service, component or CI can perform its agreed function without interruption.
  - The reliability of the service can be improved by increasing the reliability of individual components or by increasing the resilience of the service to individual component failure (i.e. increasing the component redundancy, e.g. by using load-balancing techniques).
  - It is often measured and reported as Mean Time Between Service Incidents (MTBSI) or Mean Time Between Failures (MTBF):

$$\text{Reliability (MTBSI in hours)} = \frac{\text{Available time in hours}}{\text{Number of breaks}}$$

$$\text{Reliability (MTBF in hours)} = \frac{\text{Available time in hours} - \text{Total downtime in hours}}{\text{Number of breaks}}$$

- **Maintainability:** a measure of how quickly and effectively a service, component or CI can be restored to normal working after a failure.
  - It is measured and reported as Mean Time to Restore Service (MTRS) and should be calculated using the following formula:

$$\text{Maintainability (MTRS in hours)} = \frac{\text{Total downtime in hours}}{\text{Number of service breaks}}$$

- **The user view of availability is influenced by three factors:**
  - Frequency of downtime
  - Duration of downtime
  - Scope of impact.

- **Intangible costs can include due to availability:**
  - Loss of customers
  - Loss of customer goodwill (customer dissatisfaction)
  - Loss of business opportunity (to sell, gain new customers or revenue, etc.)
  - Damage to business reputation

IT SERVICE CONTINUITY MANAGEMENT

Purpose/goal/objective

- The goal of ITSCM is to support the overall Business Continuity Management process by ensuring that the required IT technical and service facilities (including computer systems, networks, applications, data repositories, telecommunications, environment, technical support and Service Desk) can be resumed within required, and agreed, business timescales.
- The purpose of ITSCM is to maintain the necessary ongoing recovery capability within the IT services and their supporting components.

The objectives of ITSCM are to:

- Maintain a set of IT Service Continuity Plans and IT recovery plans that support the overall Business Continuity Plans (BCPs) of the organization.
- Complete regular Business Impact Analysis (BIA) exercises to ensure that all continuity plans are maintained in line with changing business impacts and requirements.
- Conduct regular Risk Analysis and Management exercises, particularly in conjunction with the
- Business and the Availability Management and Security Management processes, that manage IT services within an agreed level of business risk.
- Provide advice and guidance to ail other areas of the business and IT on all continuity- and recovery-related issues.
- Ensure that appropriate continuity and recovery mechanisms are put in place to meet or exceed the agreed business continuity targets.

ITSCM process includes The agreement of the scope of the ITSCM process and the policies adopted.

- **Business Impact Analysis (BIA)** to quantify the impact loss of IT service would have on the business.
- **Risk Analysis (RA)** - the risk identification and risk assessment to identify potential threats to continuity and the likelihood of the threats becoming reality. This also includes taking measures to manage the identified threats where this can be cost-justified.

Process activities

- ***Stage 1 – Initiation***
  - **Policy setting** policy should set out management intention and objectives.
  - **Specify terms of reference and scope** includes defining the scope and responsibilities of all staff in the organization.
  - **Allocate resources:** establishment of an effective Business Continuity environment requires considerable resource in terms of both money and manpower.
  - **Agree project and quality plans** - plans enable the project to be controlled and variances addressed. Quality plans ensure that the deliverables are achieved and to an acceptable level of quality.
- ***Stage 2 - Requirements and strategy***
  - **Requirements** - perform Business Impact Analysis and risk assessment
  - **Strategy** - following the requirements analysis, the strategy should document the required risk reduction measures and recovery options to support the business.

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- ***Stage 3 – Implementation***

o Once the strategy has been approved, the IT Service Continuity Plans need to be produced in line with the Business Continuity Plans.

o ITSCM plans need to be developed to enable the necessary information for critical systems, services and facilities to either continue to be provided or to be reinstated within an acceptable period to the business.

- ***Stage 4 - Ongoing operation***
  - o **Education, awareness and training** - this should cover the organization and, in particular, the IT organization, for service continuity-specific items.
    - This ensures that all staff are aware of the implications of business continuity and of service continuity and consider these as part of their normal working, and that everyone involved in the plan has been trained in how to implement their actions.
  - o **Review** - regular review of all of the deliverables from the ITSCM process needs to be undertaken to ensure that they remain current.
  - o **Testing-** All plans should also be tested after every major business change.

Change Management

o The Change Management process should ensure that all changes are assessed for their potential impact on the ITSCM plans.

INFORMATION SECURITY MANAGEMENT

Purpose/goal/objective

- The goal of the ISM process is to align IT security with business security and ensure that information security is effectively managed in all service and Service Management activities.
- Information security is a management activity within the corporate governance framework, which provides the strategic direction for security activities and ensures objectives are achieved.
- It further ensures that the information security risks are appropriately managed and that enterprise information resources are used responsibly.
- The term 'information' is used as a general term and includes data stores, databases and metadata.
- **ISM process should include**
  - o The production, maintenance, distribution and enforcement of an Information Security Policy and supporting security policies.
  - o Understanding the agreed current and future security requirements of the business and the existing Business Security Policy and plans.
  - o Implementation of a set of security controls that support the Information Security Policy and manage risks associated with access to services, information and systems.

Security framework

- An Information Security Policy and specific security policies that address each aspect of strategy, controls and regulation
- A comprehensive security strategy, closely linked to the business objectives, strategies and plans
- An effective security organizational structure
- The management of security risks
- *The **Information Security Policy***
- An overall Information Security Policy
- Use and misuse of IT assets policy
- An access control policy
- A password control policy
- An e-mail policy
- An internet policy

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Process activities of ISM

- Production, review and revision of an overall Information Security Policy and a set of supporting specific policies.
- Communication, implementation and enforcement of the security policies.
- Assessment and classification of all information assets and documentation.
- Implementation, review, revision and improvement of a set of security controls and risk assessment and responses.

SUPPLIER MANAGEMENT

Purpose/goal/objective

- The goal of the Supplier Management process is to manage suppliers and the services they supply, to provide seamless quality of IT service to the business, ensuring value for money is obtained.
- The Supplier Management process ensures that suppliers and the services they provide are managed to support IT service targets and business expectations.
- The aim of this section is to raise awareness of the business context of working with partners and suppliers, and how this work can best be directed toward realizing business benefit for the organization.

Objectives of the Supplier Management process are:

- Obtain value for money from supplier and contracts.
- Ensure that underpinning contracts and agreements with suppliers are aligned to business needs, and support and align with agreed targets in SLRs and SLAs, in conjunction with SLM.
- Manage relationships with suppliers.
- Manage supplier performance.

Supplier Management process should include

- Implementation and enforcement of the supplier.
- Policy Maintenance of a Supplier and Contract Database (SCD).
- Supplier and contract categorization and Risk Assessment.
- Supplier and contract evaluation and selection.
- Development, negotiation and agreement of contracts.
- Contract review, renewal and termination.

Supplier Management procedures and activities

- Supplier categorization and maintenance of the Supplier and Contracts Database (SCD).
- Evaluation and set-up of new suppliers and contracts.
- Establishing new suppliers.
- Supplier and Contract Management and performance.
- Contract renewal and termination.

CHAPTER 3: Challenges, Critical Success Factors and Risks

Supplier Management faces many challenges, which could include some of the following:

- Continually changing business and IT needs and managing significant change in parallel with delivering existing service.
- Legacy issues, especially with services recently Outsourced.
- Insufficient expertise retained within the organization.
- Disputes over charges.
- Personality conflicts.

Risk associated with Supplier Management include:

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- Lack of commitment from the business and senior management to the Supplier Management process and procedures.
- Lack of appropriate information on future business and IT policies, plans and strategies
- Lack of resources and/or budget for the ISM process.
- Supplier personnel or organizational culture are not aligned to that of the service provider or the business.
- Suppliers are taken over and relationships, personnel and contracts are changed.

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UNIT 3

CHAPTER 1: Service Transition

Fundamentals

Service Transition principles

Principles Supporting Service Transition

- understanding what a service is and how it delivers value to the business, provide the foundation for Service Transition.

Define a service

- The Service Strategy publication describes the framework for defining a service. The value of a service is defined within the context of customers and contracts within an eco-system that is commonly referred to as the business environment.
- Services are a means for providing value to customers

Service utilities and warranties

- The utility of a service is defined in terms of the business outcomes that customers expect the service to support and the constraints it will remove.
- This utility is in the form of enhancing or enabling the performance of the customer assets, and contributing to the realization of business outcomes.
- A warranty is an assurance that some product or service will be provided or will meet certain specifications.

POLICIES FOR SERVICE TRANSITION

- **Define and implement a formal policy for Service Transition.**
  - A formal policy for Service Transition should be defined, documented and approved by the management team, who ensure that it is communicated throughout the organization and to all relevant suppliers and partners.
- **Implement all changes to services through Service Transition**
  - All changes to the Service Portfolio or service catalogue are implemented through Change Management and the changes that are managed by the Service Transition lifecycle stage are defined and agreed.
- **Adopt a common framework and Standards**
  - Base Service Transition on a common framework of standard re-usable processes and systems to improve integration of the parties involved in Service Transition and reduce variations in the processes.
- **Maximize re-use of established processes and systems**
  - Service Transition processes are aligned with the organization's processes and related systems to improve efficiency and effectiveness and where new processes are required, they are developed with re-use in mind.
- **Align Service Transition plans with the business needs**
  - Align Service Transition plans and new or changed service with the customer and business organization's requirements in order to maximize value delivered by the change.
- **Establish and maintain relationships with stakeholders**
  - Establish and maintain relationships with customers, customer representatives, users and suppliers throughout Service Transition in order to set their expectations about the new or changed service.
- **Establish effective controls and Disciplines**
  - Establish suitable controls and disciplines throughout the service lifecycle to enable the smooth transition of service changes and releases.

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- **Provide systems for knowledge transfer and decision support**
  - Service Transition develops systems and processes to transfer knowledge for effective operation of the service and enable decisions to be made at the right time by competent decision makers.
- **Plan release and deployment Packages**
  - Release packages are planned and designed to be built, tested, delivered, distributed and deployed into the live environment in a manner that provides the agreed levels of traceability, in a cost-effective and efficient way.
- **Anticipate and manage course Corrections**
  - Train staff to recognize the need for course corrections and empower them to apply necessary variations within prescribed and understood limits.
- **Proactively manage resources across Service Transitions**
  - Provide and manage shared and specialist resources across Service Transition activities to eliminate delays.
- **Ensure early involvement in the service lifecycle**
  - Establish suitable controls and disciplines to check at the earliest possible stage in the service lifecycle that a new or changed service will be capable of delivering the value required.
- **Assure the quality of the new or changed service**
  - Verify and validate that the proposed changes to the operational services defined in the service and release definitions, service model and Service Design Package can deliver the required service requirements and business benefits.
- **Proactively improve quality during Service Transition**
  - Proactively plan and improve the quality of the new or changed service during transition.

Chapter 2 : Service Transition processes

TRANSITION PLANNING AND SUPPORT

Purpose, goals and objectives

Purpose

- Plan appropriate capacity and resources to package a release, build, release, test, deploy and establish the new or changed service into production.
- Provide support for the Service Transition teams and People.
- Plan the changes required in a manner that ensures the integrity of all identified customer assets, service assets and configurations can be maintained as they evolve through Service Transition
- Ensure that Service Transition issues, risks and deviations are reported to the appropriate stakeholders and decision makers

goals

- Plan and coordinate the resources to ensure that the requirements of Service Strategy encoded in Service Design are effectively realized in Service Operations.
- Identify, manage and control the risks of failure and disruption across transition activities.

Objective

- Plan and coordinate the resources to establish successfully a new or changed service into production within the predicted cost, quality and time estimates.
- Ensure that all parties adopt the common framework of standard re-usable processes and supporting systems in order to improve the effectiveness and efficiency of the integrated planning and coordination activities.

Scope

- Incorporating design and operation requirements into the transition plans

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- Managing and operating Transition Planning and Support activities
- Maintaining and integrating Service Transition plans across the customer, service and contract portfolios
- Managing Service Transition progress, changes, issues, risks and deviations
- Quality review of all Service Transition, release and deployment plans

Value to business

- improve a service provider's ability to handle high volumes of change and releases across its customer base.

Policies, principles and basic concepts

Service Transition policy

- *Release policy :* The roles and responsibilities at each stage in the release and deployment process
- All releases should have a unique identifier that can be used by Configuration Management
- Major releases, normally containing large areas of new functionality, some of which may eliminate temporary fixes to problems.
- Minor releases, normally containing small enhancements and fixes, some of which may already have been issued as emergency fixes.
- Emergency releases, normally containing the corrections to a small number of known errors or sometimes an enhancement to meet a high priority business requirement.

Process activities, methods and Techniques

Transition strategy

The Service Transition strategy defines the overall approach to organizing Service Transition and allocating resources.

The aspects to consider are:

- Purpose, goals and objectives of Service Transition
- Scope - inclusions and exclusions
- Applicable standards, agreements, legal, regulatory and contractual requirements.
- Organizations and stakeholders involved in transition.
- Framework for Service Transition, Entry and exit criteria for each release stage
- Identification of requirements and content of the new or changed service
- Assigning roles and responsibilities including approvals

- **Service Transition lifecycle stages**
  - Acquire and test input configuration items (CIs) and Components
  - Build and test
  - Service release test
  - Service operational readiness test
  - Deployment
  - Early life support
  - Review and close service transition
- ***Prepare for Service Transition*** Review and acceptance of inputs from the other service lifecycle stages
- **Planning and coordinating Service Transition**
  - Planning an individual Service Transition.
  - Integrated planning.
  - Adopting programme and project management best practices.
  - Reviewing the plans.
- **Provide transition process support**
  - Advice

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- Administration

CHANGE MANAGEMENT

- **Changes arise for a variety of reasons:**
  - Proactively, e.g. seeking business benefits such as reducing costs or improving services or increasing the ease and effectiveness of support
  - Reactively as a means of resolving errors and adapting to changing circumstances
- **Changes should be managed to:**
  - Optimize risk exposure (supporting the risk profile required by the business)
  - Minimize the severity of any impact and disruption
  - Be successful at the first attempt.
- **Change Management process and provides guidance that is scalable for:**
  - Different kinds and sizes of organizations
  - Small and large changes required at each lifecycle stage
  - Changes with major or minor impact
  - Changes in a required timeframe
  - Different levels of budget or funding available to deliver change.
- **purpose of the Change Management**
  - Standardized methods and procedures are used for efficient and prompt handling of all changes Overall business risk is optimized.
- **goals of Change Management**
  - Respond to the customer's changing business requirements while maximizing value and reducing incidents, disruption and re-work
  - Respond to the business and IT requests for change that will align the services with the business needs.
  - objective of the Change Management process is to ensure that changes are recorded and then evaluated, authorized, prioritized, planned, tested, implemented, documented and reviewed in a controlled manner.
- **Scope**
  - Service change : scope of Change Management covers changes to baselined service assets and configuration items across the whole service lifecycle. changes would produce RFCs to generate consequential service changes
- **Value to business**
  - Prioritizing and responding to business and customer change proposals
  - Implementing changes that meet the customers agreed service requirements while optimizing costs
  - Delivering change promptly to meet business Timescales
  - Reducing the Mean Time to Restore Service (MTRS), via quicker and more successful implementations of corrective changes
- **top five risk indicators of poor Change Management are:**
  - Unauthorized changes (above zero is unacceptable)
  - A low change success rate
  - A high number of emergency changes
  - Delayed project implementations.
  - Mean Time to Restore Service (MTRS) should be used to avoid the ambiguity of Mean Time To Repair (MTTR).
  - The downtime in MTRS covers all the contributory factors that make the service, component or Cl unavailable
- **Policies, principles** and **basic concepts**

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- ***Policies***
  - Creating a culture of Change Management across the organization where there is zero tolerance for unauthorized change Aligning the service Change Management process with business, project and stakeholder Change Management processes Establishing accountability and responsibilities for changes through the service lifecycle Preventing people who are not authorized to make a change from having access to the production environment
- ***Design and planning considerations***
  - requirements and design for the Change Management processes include:
  - Approach to eliminating unauthorized change
- **Identification and classification**
  - Organization, roles and responsibilities : Accountabilities and responsibilities of all stakeholders
  - Stakeholders : Communicating changes, change schedule and release plans
  - Grouping and relating changes : By linking several child RFCs to a master RFC
  - Procedures: Change authorization policies, rules and procedures
- ***Types of change request***
  - Different types of change may require different types of change request. An organization needs to ensure that appropriate procedures and forms are available to cover the anticipated requests.
  - *Change process models and workflows*
    - Changes that require specialized handling could be treated in this way, such as emergency changes that may have different authorization and may be documented retrospectively.
- ***Standard changes (pre-authorized)***
    - include an upgrade of a PC in order to make use of specific standard and pre-budgeted software, new starters within an organization, or a desktop move for a single user.

- **Remediation planning**
  - No change should be approved without having explicitly addressed the question of what to do if it is not successful. Ideally, there will be a back-out plan, which will restore the organization to its initial situation, often through the reloading of a baselined set of CIs, especially software and data.
- **Process activities, methods and techniques**
  - **Change Management activities include**
    - Planning and controlling changes
    - Change and release scheduling
    - Communications
    - Change decision making and change authorization
    - Ensuring there are remediation plans
    - Measurement and control
  - **Typical activities in managing individual changes are**
    - Create and record the RFC
    - Review RFC and change proposal
    - Assess and evaluate the change
    - Authorize the change
    - Plan updates
    - Coordinate change implementation
    - Review and close change

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- ***1.Normal Change Procedure***
  - The general principles set out apply to all changes, but where normal change procedure can be modified, i.e. for standard or emergency changes, this is set out following the explanation of normal change procedure.
- ***2.Create and record Requests for change***
  - information recorded for a change; the level of detail depends on the size and impact of the change. Some information is recorded when the document is initiated and some information may be updated as the change document progresses through its lifecycle.
- ***3.Review the Request for Change***
  - Change Management should briefly consider each request and filter out any that seem to be Totally impractical
  - Repeats of earlier RFCs, accepted, rejected or still under consideration
  - Incomplete submissions, e.g. inadequate description, without necessary budgetary approval.
- ***4.Assess and evaluate the change***
  - The potential impact on the services of failed changes and their impact on service assets and configurations need to be considered. Generic questions (e.g. the 'seven Rs') provide a good starting point.
  - **The seven Rs of Change Management**
    - Who RAISED the change?
    - What is the REASON for the change?
    - What is the RETURN required from the change?
    - What are the RISKS involved in the change?
    - What RESOURCES are required to deliver the change?
    - Who is RESPONSIBLE for the build, test and implementation of the change?
    - What is the RELATIONSHIP between this change and other changes?
  - **conducting the impact and resource assessment, who are involved in this process should consider relevant items, including:**
    - the impact that the change will make on the customer's business operation
    - the effect on the infrastructure and customer service, as defined in the service requirements baselines, service model and on the capacity and performance, reliability and resilience, contingency plans, and security
    - the impact on other services that run on the same infrastructure (or on projects)
    - the effect of not implementing the change
    - the current change schedule (CS) and projected service outage (PSO)
  - **Change impact and risk categorization matrix**
    -

Change impact	Change impact/risk categorization matrix	
	High impact Low probability Risk category: 2	High impact High probability Risk category: 1
	Low impact Low probability Risk category: 4	Low impact High probability Risk category: 3
	Probability	

- ***Risk categorization***
  - The issue of risk to the business of any change must be considered prior to the authorisation of any change. Many organizations use a simple matrix like the one shown in Table categorize risk, and from this the level of change assessment and authorization required.
- ***Evaluation of change***
  - All members of the change authority should evaluate the change based on impact, urgency, risk, benefits and costs. Each will indicate whether they support approval and be prepared to argue their case for any alterations that they see as necessary.
- ***Allocation of priorities***
  - The priority of a change is derived from the agreed impact and urgency. Initial impact and urgency will be suggested by the change initiator but may well be modified in the change authorization process.
- ***Change planning and scheduling***
  - It is recommended very strongly that Change Management schedule changes to meet business rather than IT needs, e.g. avoiding critical business periods. Pre-agreed and established change and release windows help an organization improve the planning and throughput of changes and releases.
- ***Assessing remediation***
  - Very often, remediation is the last thing to be considered; risks may be assessed, mitigation plans cast in stone. How to get back to the original start point is often ignored or considered only when regression is the last remaining option.

- ***5.Authorizing the change***

  - Formal authorization is obtained for each change from a change authority that may be a role, person or a group of people.
  - A degree of delegated authority may well exist within an authorization level, e.g. delegating authority to a change manager according to pre-set parameters relating to:
    - Anticipated business risk
    - Financial implications
    - Scope of the change (e.g. internal effects only, within the finance service, specific outsourced services).
- ***6.Coordinating change implementation***
  - Authorized RFCs should be passed to the relevant technical groups for building of the changes. It is best
  - practice to do this in a formal way that can be tracked
- ***7.Review and close change record***
  - On completion of the change, the results should be reported for evaluation to those responsible for managing changes, and then presented as a completed change for stakeholder agreement (including the closing of related incidents, problems or known errors). Clearly, for major changes there will be more customer and stakeholder input throughout the entire process.
- ***8.Change Advisory Board***

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- The Change Advisory Board (CAB) is a body that exists to support the authorization of changes and to assist Change Management in the assessment and prioritization of changes. As and when a CAB is convened, members should be chosen who are capable of ensuring that all changes within the scope of the CAB are adequately assessed from both a business and a technical viewpoint.
- To achieve this, the CAB needs to include people with a clear understanding across the whole range of stakeholder needs. The change manager will normally chair the CAB, and potential members include:
  - Customer(s)
  - User manager(s)
  - User group representative(s)
  - Applications developers/maintainers
  - Specialists/technical consultants
  - Services and operations staff, e.g. service desk, test management, ITSCM, security, capacity
  - Facilities/office services staff (where changes may affect moves/accommodation and vice versa)
  - Contractor's or third parties' representatives, e.g. in outsourcing situations

- ***9.Emergency changes***
  - Emergency changes are sometimes required and should be designed carefully and tested before use or the impact of the emergency change may be greater than the original incident. Emergency changes may document some details retrospectively.
  - The number of emergency changes proposed should be kept to an absolute minimum, because they are generally more disruptive and prone to failure.
    - ***Emergency change authorization***
      - Defined authorization levels will exist for an emergency change, and the levels of delegated authority must be clearly documented and understood.
    - ***Emergency change building, testing and implementation***
      - Authorized changes are allocated to the relevant technical group for building. Where timescales demand it, Change Management, in collaboration with the appropriate technical manager, ensures that sufficient staff and resources (machine time etc.) are available to do this work. Procedures and agreements - approved and supported by management - must be in place to allow for this. Remediation must also be addressed.
    - ***Emergency change documentation***
      - It may not be possible to update all Change Management records at the time that urgent actions are being completed (e.g. during overnight or weekend working). It is, however, essential that temporary records are made during such periods, and that all records are completed retrospectively, at the earliest possible opportunity.

Triggers, input and output, and interprocess interfaces

- **Triggers**
  - Requests for change can be triggered throughout the service lifecycle and at the interfaces with other organizations, e.g. customers and suppliers. There will also be other stakeholders such as partners that may be involved with the Change Management processes.

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- ***Strategic changes***
  - Legal/regulatory change
  - Organizational change
  - Policy and standards change
- ***Change to one or more services***
  - Changes to the planned services (in the Service Portfolio) and changes to the services in the service catalogue will trigger the Change Management process. These include changes to:
  - Service catalogue
  - Service package
  - Service definition and characteristics
  - Release package
  - Warranties
  - Utilities
  - Cost of utilization
- ***Operational change***
  - depend on the nature of the organization and services and may include requests such as password reset, access request or request to move an IT asset.
- ***Changes to deliver continual improvement***
  - improvement to a Service is warranted, an RFC should be submitted to Change Management.
  - **Inputs**
  - The change proposal will be based on a change model and will provide more detail about the specific change proposed. The inputs include:
    - Policy and strategies for change and release
    - Request for Change
    - Change proposal
    - Current change schedule and PSO
    - Test results, test report and evaluation report.
  - ***Outputs***
    - Rejected RFCs
    - Approved RFCs
    - New, changed or disposed assets or configuration items, e.g. baseline, service package, release package
    - Change schedule
    - Revised PSO
  - ***Interfaces***
    - There will be occasions when a proposed change will potentially have a wider impact on other parts of the organization (e.g. facilities or business operations), or vice versa, and the service change process must interface appropriately with other processes involved.
    - Integration with business change processes
    - Programme and project management
    - Sourcing and partnering

SERVICE ASSET AND CONFIGURATION MANAGEMENT

- **Purpose, goal and objective**
  - **purpose of SACM is to:**

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        - Identify, control, record, report, audit and verify service assets and configuration items, including versions, baselines, constituent components, their attributes, and relationships
        - Account for, manage and protect the integrity of service assets and configuration items (and, where appropriate, those of its customers) through the service lifecycle by ensuring that only authorized components are used and only authorized changes are made
    - **goals of Configuration Management are to:**
        - Support the business and customer's control objectives and requirements
        - Optimize the service assets, IT configurations, capabilities and resources
    - **objective**
        - objective is to define and control the components of services and infrastructure and maintain accurate configuration information on the historical, planned and current state of the services and infrastructure.
- **Scope**
- Asset Management covers service assets across the whole service lifecycle. It provides a complete inventory of assets and who is responsible for their control. It includes:
    - Full lifecycle management of IT and service assets, from the point of acquisition through to disposal
    - Maintenance of the asset inventory.
- **Value to business**
    - Optimizing the performance of service assets and configurations improves the overall service performance and optimizes the costs and risks caused by poorly managed assets, e.g. service outages, fines, correct licence fees and failed audits.
    - SACM provides visibility of accurate representations of a service, release, or environment that enables:
        - Better forecasting and planning of changes
        - Changes and releases to be assessed, planned and delivered successfully
        - Incidents and problems to be resolved within the service level targets
- **Policies, principles and basic concepts**
    - Changes to any interface items need to be managed through Change Management.
- **Service Asset and Configuration Management policies**
    - The first step is to develop and maintain the SACM policies that set the objectives, scope and principles and critical success factors (CSFs) for what is to be achieved by the process.
    - Asset policies may be applicable for specific asset types or services, e.g. desktop.
- **Service Asset and Configuration Management principles**
    - Ensuring that Asset and Configuration Management operations costs and resources are commensurate with the potential risks to the services
    - The need to deliver the capability, resources and service warranties as defined by the service level agreements and contracts
    - The requirement for available, reliable and cost effective Services
    - The level of control and requirements for traceability and auditability
- **Basic concepts**
    - **The configuration model**
        - Configuration Management delivers a model of the services, assets and the infrastructure by recording the relationships between configuration items
    - **Configuration items**
        - A configuration item (CI) is an asset, service component or other item that is, or will be, under the control of Configuration Management. Configuration items may vary

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widely in complexity, size and type, ranging from an entire service or system including all hardware, software, documentation and support staff to a single software module or a minor hardware component.

- **variety of Cis**
  - **Service lifecycle Cis**
    - They provide a picture of the service provider's services, how these services will be delivered, what benefits are expected, at what cost, and when they will be realized.
  - **Service Cis**
    - Service capability assets
    - Service resource assets
    - Service model
    - Service package
  - **Organization Cis**
    - Some documentation will define the characteristics of a CI whereas other documentation will be a CI in its own right and need to be controlled
  - **Internal CIs**
    - comprising those delivered by individual projects, including tangible (data centre) and intangible assets such as software that are required to deliver and maintain the service and infrastructure.
  - **External CIs**
    - such as external customer requirements and agreements, releases from suppliers or subcontractors and external services.
  - **Interface CIs**
    - that are required to deliver the end-toend service across a service provider interface (SPI).

- **Configuration Management System**
- To manage large and complex IT services and infrastructures, Service Asset and Configuration Management requires the use of a supporting system known as the Configuration Management System (CMS).
  - **Secure libraries and secure stores**
    - A secure library is a collection of software, electronic or document CIs of known type and status.
  - **The Definitive Media Library**
    - The Definitive Media Library (DML) is the secure library in which the definitive authorized versions of all media Cis are stored and protected. It stores master copies of versions that have passed quality assurance checks.
  - **Definitive spares**
    - An area should be set aside for the secure storage of definitive hardware spares. These are spare components and assemblies that are maintained at the same level as the comparative systems within the controlled test or live environment.
  - **Configuration baseline**
    - A configuration baseline is the configuration of a service, product or infrastructure that has been formally reviewed and agreed on, that thereafter serves as the basis for further activities and that can be changed only through formal change procedures.
  - **Snapshot**
    - A snapshot of the current state of a configuration item or an environment
- **Process activities, methods and techniques**
  - Asset and Configuration Management activities

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- Management and planning
- Configuration identification
- **Configuration structures and the selection of configuration items**
  - Naming configuration items
  - Labelling configuration items
  - Attributes for configuration items
  - Defining configuration documentation
  - Relationships
  - Identification of configuration baselines
  - Identification of release unit
- **Configuration control**
  - Configuration control ensures that there are adequate control mechanisms over CIs while maintaining a record of changes to Cis
- **Status accounting and reporting**
  - The way CIs move from one state to another should be defined, e.g. an application release may be registered, accepted, installed or withdrawn.
- **Verification and audit**
  - Before acceptance into the live environment, new releases, builds, equipment and standards should be verified against the contracted or specified requirements.

- **Release and Deployment Management**
  - **GOAL:** To deploy new releases into production, transition support to service operation, and enable its effective use in order to deliver value to the customer.
  - **Release:** A collection of authorized Changes to an IT Service
  - **Release Unit:** A Release Unit describes the portion of a service of IT infrastructure that is normally released together according to the organization's release policy. The unit may vary depending on type(s) or item(s) of service asset or service component such as hardware or software.
  - **Release Package:** A release package may be a single release unit or a structured set of release units, including the associated user or support documentation that is required.
  - **Definitive Media Library (DML):** The secure library in which the definitive authorized versions of all media CIs are stored and protected.
  - **Definitive Spares (DS):** Physical storage of all spare IT components and assemblies maintained at the same level as within the live environment.
  - **Early Life Support :** Where release and deployment teams assist in managing any calls, incidents and problems that are detected in the immediate few days/weeks after the deployment of the new or modified service.

Service Validation and Testing

- **GOAL:** The overriding goal of Service Validation and Testing is to assure that the new or modified service will provide the appropriate value to customers and their business. Other objectives include:
  - **Provide confidence** that service changes deliver the expected outcomes and value for customers within the projected costs, capacity and constraints. This includes verification that the service is 'fit for purpose' and 'fit for use'.
  - Confirm that customer and stakeholder requirements and **criteria are correctly defined** and address and variances as early as possible.
- Testing is a vital area within Service Management and has often been the unseen underlying cause of what was taken to be inefficient Service Management processes. If services are not tested sufficiently, then their introduction into the operational environment will bring rise in:
  - **Incidents**

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    - Failures in service elements and mismatches between what was wanted and what was delivered impact on business support.
  - **Service Desk calls for assistance**
    - Services that are not functioning as intended are inherently less intuitive causing higher support requirements;
  - **Problems and errors**
    - That are harder to diagnose in the live environment;
  - **Costs**
    - Since errors are more expensive to fix in production than if found in testing;
  - **Services that are not used effectively**
    - By the users to deliver the desired value.
- The **Service V Model** is a concept of defining the appropriate requirements and appropriate validation methods that apply in order to justify release to the customer for trial and assessment.
  - The **left hand side** represents the specification of the **high-level business requirements**, which gets further refined down to the detailed Service Design criteria and individual release package criteria.
  - The **right hand side** focuses on the **validation and test activities** that are performed against the specifications defined on the left hand side, with direct involvement by the equivalent party on the right hand side (i.e. the person who signs off on the business requirements also signs to accept the service page has met their requirements

- **Design considerations** are applicable for service test models, test cases and test scripts and include:
  - Business/Organization
  - Service architecture and performance
  - Service release test environment requirements
  - Service Management
  - Application information and data
  - Technical infrastructure
- **Types of testing**
  - Usability testing
  - Accessibility testing
  - Process and procedure testing
  - Knowledge transfer and competence testing
  - Performance, capacity and resilience testing
  - Volume, stress, load and scalability testing
  - Availability testing
  - Backup and recovery testing

Evaluation

- Evaluation is a generic process that considers whether the performance of something is acceptable, value for money etc. - and whether it will be proceeded with, accepted into use, paid for, etc.
- **The objective is to:**
  - Evaluate the intended effects of a service change and as much of the unintended effects as is reasonably practical given capacity, resource and organizational constraints
  - Provide good quality outputs from the evaluation process so that Change Management can expedite an effective decision about whether a service change is to be approved or not.
- **Basic concepts**

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- The evaluation process uses the Plan-Do-Check-Act (PDCA) model to ensure consistency across all evaluations.

Knowledge Management Considerations

- The ability to deliver a quality service or process rests to a significant extent on the ability of those involved to respond to circumstances - and that in turn rests heavily on their understanding of the situation, the options and the consequences and benefits
- If your SKMS is established, you would be able to identify if you have the skills required to support videoconferencing, for example.
  - The SKMS will also help to determine the team required to build, test and deploy HYPE.
  - Place to record and transfer user and support documentation.
  - **The Data to information-to-Knowledge to Wisdom**
    - **Data** is a set of discrete facts about events. Most organizations capture significant amounts of data in highly structured databases such as Service Management and Configuration Management tools/systems and databases.
    - **Information** comes from providing context to data. Information is typically stored in semi-structured content such as documents, e-mail, and multimedia.
    - **Knowledge** is composed of the tacit experiences, ideas, insights, values and judgements of individuals.
    - **Wisdom** gives the ultimate discernment of the material and having the application and contextual awareness to provide a strong common sense judgement.

Chapter 3 : Challenges, critical success factors and Risks

CHALLENGES

- The complexity of services across the supply chain is increasing and this leads to challenges for any service provider that implements new services or changes existing services.
- **This prime position brings a wide range of challenges to successful Service Transition, such as:**
  - Enabling almost every business process and service in IT, resulting in a large customer and stakeholder group that is involved and impacted by Service Transition
  - Managing many contacts, interfaces and relationships through Service Transition, including a variety of different customers, users, programmes, projects, suppliers and partners
  - There being little harmonization and integration of the processes and disciplines that impact Service Transition, e.g. finance, engineering, human resource Management
  - There being inherent differences among the legacy systems, new technology and human elements that result in unknown dependencies and are risky to change

CRITICAL SUCCESS FACTORS

- Service provision, in all organizations, needs to be matched to current and rapidly changing business demands. The objective is to improve continually the quality of service, aligned to the business requirements, cost-effectively.
- To meet this objective, the following critical success factors need to be considered for Service Transition:
  - Maintaining the contacts and managing all the relationships during Service Transition
  - Good Service Management and IT infrastructure tools and technology
  - Being able to appreciate and exploit the cultural and political environment

RISKS

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- Implementing the Service Transition practice should not be made without recognizing the potential risk to services currently in transition and those releases that are planned.
- These risks might include:
    - Change in accountabilities, responsibilities and practices of existing projects that de-motivate the workforce Alienation of some key support and operations staff
    - Additional unplanned costs to services in transition
    - Resistance to change and circumvention of the processes due to perceived bureaucracy.

SERVICE TRANSITION UNDER DIFFICULT CONDITIONS

- In some circumstances, Service Transitions will be required under atypical or difficult conditions, such as:
    - Short timescale
    - Restricted finances
    - Restricted resource availability - not enough people or lack of test environments, inadequate tools etc.
    - Absence of anticipated skills sets

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UNIT 4

CHAPTER 1: Service Operation

Fundamentals

- The Service Operation lifecycle phase is primarily focused on the management of IT Services that ensures effectiveness and efficiency in delivery and support.
- Successful Service Operation requires coordination and execution of the activities and processes required to deliver and manage services at agreed levels to business users and customers.
- Service Operation is also responsible for ongoing management of the technology that is used to deliver and support services.
- One of Service Operations key roles is dealing with the conflict between maintaining the status, and adapting to the changing business and technological environments and achieving a balance between conflicting sets of priorities.
- **This lifecycle phase provides guidance on:**
    - How to provide stability in Service Operations, allowing for changes in design, scale, scope and service levels.
    - Service Operation process guidelines, methods and tools for use in two major control perspectives; reactive and proactive.
    - Supporting operations through new models and architectures such as shared services, utility computing, web services and mobile commerce.

Functions, groups, teams, departments and divisions

- **Function:**
    - A function is a logical concept that refers to the people and automated measures that execute a defined process, an activity or a combination of processes or activities.
    - In larger organizations, a function may be broken out and performed by several departments, teams and
    - groups, or it may be embodied within a single organizational unit (e.g. Service Desk).
    - In smaller organizations, one person or group can perform multiple functions – e.g. a Technical Management department could also incorporate the Service Desk function.
- **Group:**
    - A group is a number of people who are similar in some way. In this publication, groups refer to people who perform similar activities even though they may work on different technology or report into different
    - organizational structures or even in different companies.
    - Groups are usually not formal organization structures, but are very useful in defining common processes across the organization – e.g. ensuring that all people who resolve incidents complete the Incident Record in the same way. In this publication the term ‘group’ does not refer to a group of companies that are owned by the same entity.
- **Team:**
    - A team is a more formal type of group. These are people who work together to achieve a common objective, but not necessarily in the same organization structure. Team members can be co-located, or work in multiple different locations and operate virtually.
    - Teams are useful for collaboration, or for dealing with a situation of a temporary or transitional nature. Examples of teams include project teams, application development teams (often consisting of people from several different business units) and incident or problem resolution teams.
- **Department:**

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- Departments are formal organization structures which exist to perform a specific set of defined activities on an ongoing basis.
- Departments have a hierarchical reporting structure with managers who are usually responsible for the execution of the activities and also for daytoday management of the staff in the department.

- **Division:**
  - A division refers to a number of departments that have been grouped together, often by geography or product line.
  - A division is normally self-contained and is able to plan and execute all activities in a supply chain.
- **Role:**
  - A role refers to a set of connected behaviours or actions that are performed by a person, team or group in a specific context.
  - For example, a Technical Management department can perform the role of Problem Management when diagnosing the root cause of incidents. This same department could also be expected to play several other roles at different times, e.g. it may assess the impact of changes (Change Management role), manage the performance of devices under their control (Capacity Management role), etc. The scope of their role and what triggers them to play that role are defined by the relevant process and agreed by their line manager.

Achieving the Balance

- Service Operation is more than just a repetitive execution of a standard set of procedures or activities, this phase works in an ever changing environment. One of Service Operation's key roles is dealing with the conflict between maintaining the status , adapting to the changing business and technological environments and achieving a balance between conflicting sets of priorities.

Internal IT View: Focuses on the way in which IT components and systems are managed to deliver the services. An organization here is out of balance and is in danger of not meeting business requirements.	vs	**External Business View:** Focuses on the way in which services are experienced by its users and customers. An organization has business focus, but tends to under-deliver on promises to the business.
Stability: No matter how good the functionality is of an IT service or how well it has been designed, it will be worth far less if the service components are not available or if they perform inconsistently. Service Operation has to ensure that the IT infrastructure is stable and available as required. However an extreme focus on stability means that IT is in danger of ignoring changing business requirements	vs	**Responsiveness:** Service Operation must recognize that the business and IT requirements change. When there is an extreme focus on responsiveness IT may tend to overspend on change and also decrease the stability of the infrastructure.
Cost of Service: An organization with an extreme focus on cost is out of balance and is in danger of losing service quality because of heavy cost cutting.	vs	**Quality of Service:** An organization with an extreme focus on quality has happy customers but may tend to overspend to deliver higher levels of service than are strictly necessary, resulting in higher costs and effort required.

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The loss of service quality leads to a loss of customers, which in turn leads to further cost cutting as the negative cycle continues.		The goal should be to consistently to deliver the agreed level of IT service to its customer and users, while at the same time keeping costs and resource utilization at an optimal level.
Reactive: An organization that is extremely reactive is not able to effectively support the business strategy. Unfortunately a lot of organizations focus on reactive management as the sole means to ensure services are highly consistent and stable, actively discouraging proactive behavior from staff. The worst aspect of this approach is that discouraging effort investment in proactive Service Management can ultimately increase the effort and cost of reactive activities and further risk stability and consistency in services.	vs	**Proactive:** An extremely proactive organization tends to fix services that are not broken, or introduce services that are not yet needed, resulting in higher levels of change, costs and effort. This also comes at a cost of stability to the infrastructure and quality of service already being delivered.

Providing service

- All Service Operation staff must be fully aware that they are there to 'provide service' to the business.
- They must provide a timely (rapid response and speedy delivery of requirements), professional and courteous service to allow the business to conduct its own activities – so that the commercial customer's needs are met and the business thrives.
- It is important that staff are trained not only in how to deliver and support IT services, but also in the manner in which that service should be provided.
- A critical element of being a proficient service provider is placing as much emphasis on recruiting and training staff to develop competency in dealing with and managing customer relationships and interactions as they do on technical competencies for managing the IT environment.

Operation staff involvement in Service Design and Service Transition

- It is extremely important that Service Operation staff are involved in Service Design and Service Transition and potentially also in Service Strategy where appropriate.
- One key to achieving balance in Service Operation is an effective **set of Service Design processes.**
    - Clear definition of IT service objectives and performance criteria
    - Linkage of IT service specifications to the performance of the IT Infrastructure
    - Definition of operational performance requirements
    - A mapping of services and technology
    - The ability to model the effect of changes in technology and changes to business requirements
    - Appropriate cost models (e.g. customer or service based) to evaluate Return on Investment and cost-reduction strategies.

- **Service Design** is a phase in the Service Management Lifecycle using a set of processes, not a function independent of Service Operation.
- As such, many of the people who are involved in Service Design will come from IT Operations Management.

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- **Service Operation staff should be measured on their involvement in Service Design activities and such activities should be included in job descriptions and roles, etc.**
- This will help to ensure continuity between business requirements and technology design and operation and it will also help to ensure that what is designed can also be operated.
- IT Operations Management staff should also be involved during **Service Transition to ensure consistency** and to ensure that both stated business and manageability requirements are met.

Operational Health

- Operational Health can be determined by isolating a few important 'vital signs' on devices or services that are defined as critical for the successful execution of a Vital Business Function. This could be the bandwidth utilization on a network segment, or memory utilization on a major server.
- If these signs are within normal ranges, the system is healthy and does not require additional attention.
- This reduction in the need for extensive monitoring will result in cost reduction and operational teams and departments that are focused on the appropriate areas for service success.
- disk may be functioning perfectly, but it could be nearing its Mean Time Between Failures (MTBF) threshold. In this case the system should be taken out of service and given a thorough examination or 'health check'.
- Operational Health is dependent on the ability to prevent incidents and problems by investing in reliable and maintainable infrastructure.
- Operational Health has also led to a specialized area called 'Self Healing Systems'.
- Self Healing Systems are known by different names, for example Autonomic Systems, Adaptive Systems and Dynamic Systems.
- **Characteristics of Self Healing Systems include:**
    - protects the system against hardware failure
    - database is duplicated on a backup device) and disk-striping technology
    - ability to shift processing from one physical device to another
    - monitoring utilities which enable the system to detect events
    - diagnostic scripts, fault trees and a database of Known Errors and common workarounds. to determine the appropriate error.
    - ability to generate a call for human intervention by raising an alert

Communication

- Good communication is needed with other IT teams and departments, with users and internal customers, and between the Service Operation teams and departments themselves.
- Information should not be communicated unless there is a clear audience.
- **actions that are intended to be taken as a result of each communication includes:**
    - Routine operational communication
    - Communication between shifts
    - Performance reporting
    - Communication in projects
    - Communication related to changes
    - Communication related to exceptions
    - Communication related to emergencies
    - Training on new or customized processes and service designs
    - Communication of strategy and design to Service Operation teams.
- **means of communication are changing with every new introduction of technology.**
    - E-mail, to traditional clients or mobile devices

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- SMS messages
- Pagers
- Instant messaging and web-based 'chats'
- Voice over Internet Protocol (VoIP) utilities that can turn any connected device to an inexpensive communication medium
- Teleconference and virtual meeting utilities, have revolutionized meetings which are now held across long distances
- Document-sharing utilities.

- **Meetings**
  - The purpose of meetings is to communicate effectively to a group of people about a common set of objectives or activities. Meetings should be well controlled and brief, and the focus should be on facilitating action.
  - **A number of factors are essential for successful meetings.**
    - Establish and communicate a clear agenda Ensure that the rules for participating are understood. Use techniques to encourage the appropriate level of participation.
    - **typical meetings types**
      - **The Operations meeting**
        - Operations meetings are normally held between the managers of the IT operational departments, teams or groups, at the beginning of each business day or week.
      - **Department, group or team meetings**
        - These meetings are essentially the same as the Operations meeting, but are aimed at a single IT department, group or team. Each manager or supervisor relays the information from the Operations meeting that is relevant to their team.
      - **Customer meetings**
        - From time to time it will be necessary to hold meetings with customers, apart from the regular Service Level Review meetings.
        - Follow-up after serious incidents.
        - A customer forum

Documentation

- IT Operations Management and all of the Technical and Application Management teams and departments are involved in creating and maintaining a range of documents.
- Participation in the definition and maintenance of process manuals for all processes they are involved in.
  - Establishing their own technical procedures manuals.
  - Participation in the creation and maintenance of planning documents
  - Participation in the creation and maintenance of the Service Portfolio.
  - Participation in the definition and maintenance of Service Management

CHAPTER 2: Service Operation Processes:

The goal of Service Operation as previously mentioned is to enable effectiveness and efficiency in delivery and support of IT services.

Event Management

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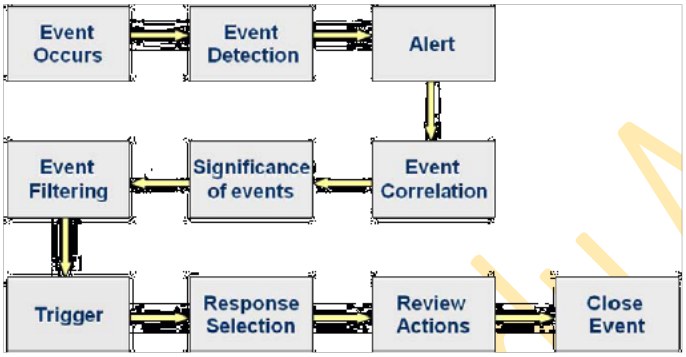
- Event Management is to provide the capability to detect events, make sense of them and determine the appropriate control action. Event Management is therefore the basis for Operational Monitoring and Control.
- **There are many different types of events,**
  - Events that signify regular operation *(e.g. A scheduled backup occurred successfully)*
  - Events that signify an exception *(e.g. A scheduled backup failed)*
  - Events that signify unusual but not exceptional operation. These are an indication that the situation may require closer monitoring.



Activities of Event Management

Incident Management

- To restore normal service operation ***as quickly as possible*** and minimize the adverse impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained.
- **What is an Incident?**
  - An unplanned interruption to an IT service.
  - A reduction in the quality of an IT service
  - Failure of a CI that has not yet affected service, but could likely disrupt service if left unchecked. This can be raised by internal IT staff.
- **Major Concepts:**
  - **Categorization:**
    - Categorization is the **unemotional/statistical** aspect of prioritization. It uses the following formula:
    - **IMPACT + URGENCY = PRIORITY**
    - **Impact:** Degree to which the *user/business* is affected
    - **Urgency:** Degree to which **r***esolution* can be delayed
  - **Escalation:**
    - Escalation is the **human element of Incident Prioritization**. It helps us identify incidents that may need to be moved up or down the priority list due to changing factors or priorities. Escalations can also be combined.
  - **Functional:**
    - Based on knowledge or expertise
    - Also known as “Horizontal Escalation”
  - **Hierarchical:**
    - For corrective actions by authorized line management
    - Also known as “Vertical Escalation”
    - When resolution of an incident will not be in time or satisfactory

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- **Activities:**
  - **Ownership, Monitoring, Tracking & Communication**
    - The Service Desk typically OWNS/accountable for ALL Incidents
    - Monitor progress, escalation of Incidents
    - Advise user and IT management
  - **Incident identification and Logging**
    - Update/confirm Incident and user details
  - **Categorization, Prioritization (Most critical activity) & Initial Support**
    - Categorize so the exact type of call is recorded e.g. Incident (E.g. Desktop, Network, Email)
    - Assess urgency and impact to assign correct *priority*
    - Match against existing Problems/Known Errors
    - Match multiple Incidents and create new Problem record (if necessary)
    - Provide initial support based on evidence already gathered (such as currently known issues).
  - **Investigation and Diagnosis**
    - Assess the Incident details and provide workaround (if available)
    - Escalate to support areas (Functional) or IT management (Hierarchical)
  - **Resolution and Recovery**
    - Resolve the Incident or raise a RFC
  - **Incident Closure**
    - Update details of actions taken and classification of Incident
    - Confirm closure with User
- **Roles and Responsibilities:**
  - **Incident Manager:**
    - Drive effectiveness & efficiency of process
    - Manage incident management team
    - Ensure SLA targets for Incident resolution are met
  - **Skills:**
    - Analytical
    - Technical
    - Business understanding
    - Communication
    - Calm under pressure.
  - **Service Desk:**
    - Log/record Incidents
    - Incident classification and categorization
    - Provide initial support
    - Match to existing Incident or Problem records
    - Manage communication with end-users
  - **1st, 2nd, 3rd line support groups:**
    - Including Technical and Application Management
    - Incident classification
    - Investigation and resolution of Incidents
- **Key Performance Indicators for Incident Management:**
  - Total number of incidents;
  - Percentage of Incidents handled within agreed response time (Incident response-time targets may be specified in SLAs, for example, by impact code);

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- Average cost per Incident;
- Percentage of Incidents closed by the Service Desk without reference to other levels of support;
- Number and percentage of Incidents resolved remotely, without the need for a visit.

Request Fulfillment

- **Goal:** Request Fulfilment is concerned with fulfilling requests from the end user community using consistent and repeatable methods. The objectives include:
  - To provide a channel for users to request and receive standard services for which a predefined approval (from Change Management) qualification exists
  - To provide information to users and customers about the availability of services and the procedure for obtaining them
  - To source and deliver the components of requested standard services
  - To assist with general information, complaints or comments
- **Scope:** The scope of Request Fulfilment is influenced heavily by the success of Change Management and what types of pre-approved changes can be effectively managed, controlled and implemented by the IT department.
- As part of continual improvement, the scope of Request Fulfilment should grow over time as maturity develops for Service Requests, including:
  - Users and customers asking questions, providing comments and making complaints
  - Users seeking changes to their access levels (utilizes Access Management)
  - Users wishing to have common services and applications installed for their use (including Standard Changes)
- **Request Models:** As many service requests will be frequently recurring, predefined request models should be defined that document:
  - What activities are required to fulfill the request
  - The roles and responsibilities involved
  - Target timescales and escalation paths
  - Other policies or requirements that apply
- **Activities:**
  - Menu selection (select common services and provide input details
  - Financial Approval (cost must be estimated)
  - 'Other' Approval (conditions in order for the standard change to be qualified)
  - Fulfilment
  - Closure (include some verification that the request has been satisfied)

Problem Management

- **Goal:**
- Problem Management is responsible for managing lifecycle of all problems. The primary objectives of Problem Management are:
  - To prevent problems and resulting incidents from happening
  - To eliminate recurring incidents
  - To minimize the impact of incidents that cannot be prevented.
- **Defined as two major processes:**
  1. Reactive Problem Management
  2. Proactive Problem Management
- **Reactive Problem Management**
  - **Reactive Problem Management activities**

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1. Problem detection
2. Problem logging
3. Problem categorization
4. Problem investigation and diagnosis
5. Workarounds
6. Raising a Known Error record
7. Problem resolution
8. Problem closure
9. Major Problem reviews

- **Proactive Problem Management**
  - **The two main activities of Proactive Problem Management are:**
  - **Trend Analysis**
    - Review reports from other processes (e.g. trends in incidents, availability levels, relationships with changes and releases)
    - Identify recurring Problems or training opportunities for IT staff, customers and end users.
  - **Targeting Preventative Action**
    - Perform a cost-benefit analysis of all costs associated with prevention
    - Target specific areas taking up the most support attention
    - Coordinate preventative action with Availability and Capacity Management, focusing on vulnerable areas of the infrastructure (e.g. single points of failure, components reaching full capacity/utilization)

Access Management

- **Goal:**
  - Access Management's primary objective is to provide capabilities for the granting of authorized users the right to use a service while preventing access to non-authorized users.
- **Relationship with other Processes**
  - Access Management ensures that users are given the right to use a service, but it does not ensure that this access is available at all agreed times – this is provided by Availability Management.
  - Where access is controlled by external suppliers, interfaces need to be developed to coordinate requests for/modifications to access levels.
- **Access Management Activities**
  1. Requesting Access
  2. Verification
  3. Providing Rights
  4. Monitoring Identity Status
  5. Logging & Tracking access
  6. Removing or Restricting rights

Operational activities of processes covered in other lifecycle phases.

- From a customer viewpoint, Service Operation is where actual value is seen. This is because it is the execution of strategies, designs and plans and improvements from the Service Lifecycle phases.
- **Key benefits delivered as a result of Service Operation are:**
  - Effectiveness and efficiency in IT Service delivery and support
  - Increased return on investment
  - More productive and positive users of IT services
- **Other benefits can be defined as:**

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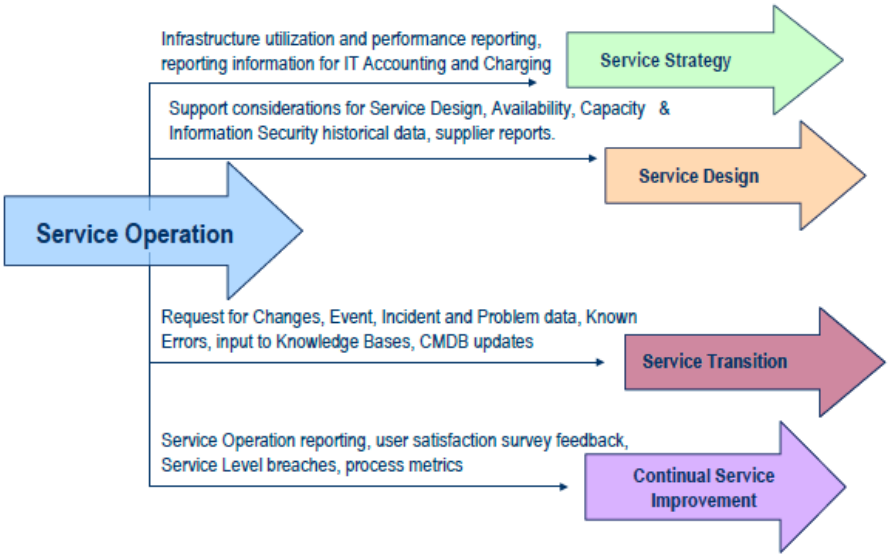
- **Long term:** Over a period of time the Service Operation processes, functions performance and output are evaluated. These reports will be analyzed and decisions made about whether the improvement is needed, and how best to implement it through Service Design and Transition
- **Short term:** Improvement of working practices within the Service Operations processes, functions and technology itself. Generally they involve smaller improvements that do not mean changes to the fundamental nature of a process or technology e.g. tuning, training, personnel redeployment etc.



Some outputs to other lifecycle phases

Chapter 3 : Challenges, Critical Success Factors and risks

- **Challenges**
  - There are a number of challenges that might be encountered:
  - obtain funding for the necessary tools and effort needed setting the correct level of filtering
  - Acquiring the necessary skills can be time consuming and costly.
- **Critical Success Factors**
  - One of the most important CSFs is achieving the correct level of filtering.
  - This is complicated by the fact that the significance of events changes. For example, a user logging into a system today is normal, but if that user leaves the organization and tries to log in it is a security breach.
  - **There are three keys to the correct level of filtering**
    - Integrate Event Management into all Service Management processes where feasible.
    - Design new services with Event Management
    - Trial and error. No matter how thoroughly Event Management is prepared
- **Risks**
  - failure to obtain adequate funding; ensuring the correct level of filtering; and failure to maintain momentum in rolling out the necessary monitoring agents across the IT Infrastructure. If any of these risks is not addressed it could adversely impact on the success of Event Management.

UNIT 5

CHAPTER 1: Continual service improvement Principles

CONTINUAL SERVICE IMPROVEMENT APPROACH

- Embrace the vision by understanding the highlevel business objectives
- Assess the current situation to obtain an accurate, unbiased snapshot of where the organization is right now.
- Understand and agree on the priorities for improvement based on a deeper development of the principles defined in the vision.
- achieve higher quality service provision by implementing or improving ITSM processes.
- Verify that measurements and metrics are in place.
- quality improvement is maintained by assuring that changes become embedded in the organization.
- The CSI approach will enable the correct questions to be asked from both a business and an IT perspective. Not understanding some of these questions can lead to challenges, **perceived poor service or in some cases actual poor service:**
    - What is the vision? The question should be asked by the IT service provider to understand what the ultimate and long term aims are.
    - Where are we now? This is a question every business should start out asking as this creates a baseline of data for services currently being delivered.
    - Where do we want to be? This is often expressed as business requirements.
    - How do we get there? What improvement initiatives are required in the short, medium and long term?
    - Did we get there? This is documented through monitoring, reporting and reviewing of service level achievements and actual performance against targets identified by the business requirements

CSI AND ORGANIZATIONAL CHANGE

- Successful ITSM requires understanding the way in which work is done and putting in place a programme of change within the IT organization. This type of change is, by its very nature, prone to difficulties. It involves people and the way they work. People generally do not like to change; the benefits must be explained to everyone to gain their support and to ensure that they break out of old working practices.

CSI REGISTER

- CSI register is kept to record all the improvement opportunities and that each one should be categorized into small, medium or large undertakings.
- The CSI register contains important information for the overall service provider and should be held and regarded as part of the service knowledge management system (SKMS).
- The CSI register will introduce a structure and visibility to CSI ensuring that all initiatives are captured and recorded, and benefits realized.
- The CSI register provides a coordinated, consistent view of the potentially numerous improvement activities.
- The CSI manager should have accountability and responsibility for the production and maintenance of the CSI register.

EXTERNAL AND INTERNAL DRIVERS

- There are two major areas within every organization driving improvement:

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- aspects that are external to the organization such as regulation, legislation, competition, external customer requirements, market pressures and economics;
- aspects that are internal to the organization such as organizational structures, culture, new knowledge, new technologies, new skills, existing and projected staffing levels, union rules etc.

SERVICE LEVEL MANAGEMENT

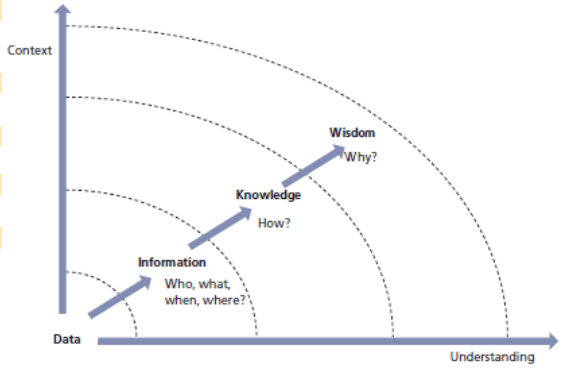
- Adopting the service level management (SLM) process is a key principle of CSI.
- **SLM involves a number of steps:**
  - Involving the business and determining its service level requirements (SLRs)
  - Identifying internal relationships in IT organizations, negotiating the terms and responsibilities of the internal relationships, and codifying them with operational level agreements (OLAs)
  - Identifying existing contractual relationships with external vendors
  - Using the service catalogue as the baseline to negotiate service level agreements (SLAs) with the business
  - Reviewing service achievement and identifying where improvements are required, feeding them into CSI.

KNOWLEDGE MANAGEMENT

- Knowledge management is explained fully in ITIL Service Transition but it plays a key role in CSI. Within each service lifecycle stage, data should be captured to enable knowledge gain and an understanding of what is actually happening, thus enabling wisdom. This is often referred to as the Data-to-Information-to-Knowledge-to-Wisdom (DIKW) structure.

THE DEMING CYCLE

- For quality improvement the Deming Cycle or Circle was introduced. This cycle is particularly applicable in CSI.



Knowledge management leads to better IT decisions

- our key stages of the cycle are Plan, Do, Check and Act, after which a phase of consolidation prevents the circle from rolling back down the hill

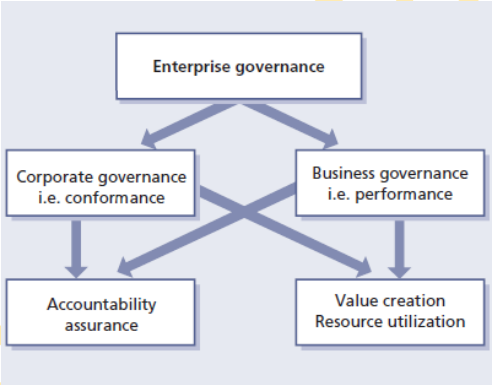
SERVICE MEASUREMENT

- **Baselines**
  - An important beginning point for highlighting improvement is to establish baselines as markers or starting points for later comparison. Baselines are also used to establish an initial data point to determine if a service or process needs to be improved.

- **Why do we measure?**
  - To validate Monitoring and measuring to validate previous decisions
  - To direct Monitoring and measuring to set the direction for activities in order to meet set targets; this is the most prevalent reason for monitoring and measuring
  - To justify Monitoring and measuring to justify, with factual evidence or proof, that a course of action is required
  - To intervene Monitoring and measuring to identify a point of intervention including subsequent changes and corrective actions.

IT GOVERNANCE

- *IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership, organizational structures and processes that ensure that the organization's IT sustains and extends the organization's strategies and objectives*
- IT governance is only part of an organization's corporate governance, but it is an important part. Governance is important for all organizations and will provide an environment within which CSI can operate and develop.
- IT governance touches nearly every area detailed



FRAMEWORKS, MODELS, STANDARDS AND QUALITY SYSTEMS

- guidance and outlines the frameworks, models, standards and quality systems that an organization may choose to use in support of ITSM. As well as ITIL itself this includes:
  - Quality management system ISO 9000
  - Total Quality Management (TQM)
  - Risk management
  - Control OBjectives for Information and related Technology (COBIT)
  - ISO/IEC 20000 and other ISO standards for IT
  - ISO 14001 – Environmental management standard
  - Programme and project management including PRINCE2
  - Skills Framework for the Information Age (SFIA)
  - Capability Maturity Model Integration (CMMI)
  - ISO/IEC 27001 – Information security management system.

CSI INPUTS AND OUTPUTS BY LIFECYCLE STAGE

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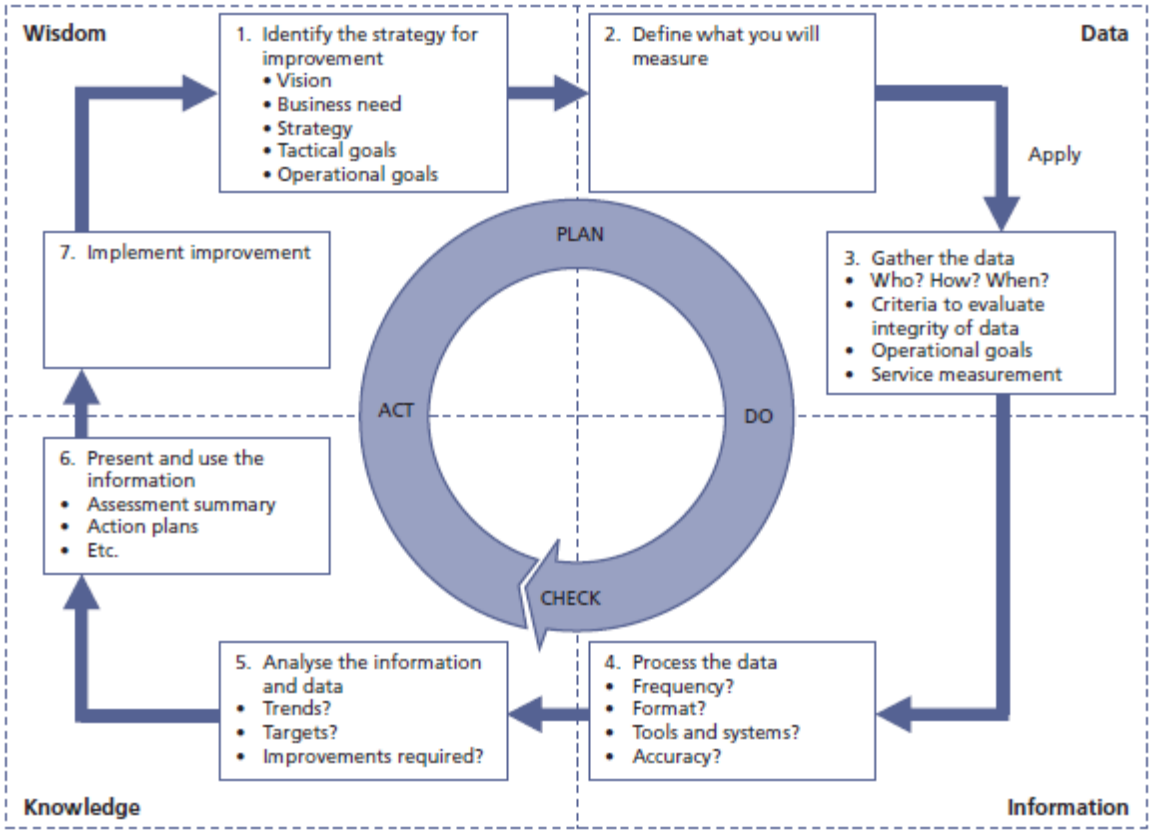
Lifecycle stage	CSI inputs (from the lifecycle stages in the first column)	CSI outputs (to the lifecycle stages in the first column)
Service strategy	Vision and mission Service portfolio Policies Strategies and strategic plans Priorities Financial information and budgets Patterns of business activity Achievements against metrics, KPIs and CSFs Improvement opportunities logged in the CSI register	Results of customer and user satisfaction surveys Input to business cases and the service portfolio Feedback on strategies and policies Financial information regarding improvement initiatives for input to budgets Data required for metrics, KPIs and CSFs Service reports Requests for change (RFCs) for implementing improvements
Service design	Service catalogue Service design packages including details of utility and warranty Knowledge and information in the SKMS Achievements against metrics, KPIs and CSFs Design of services, measurements, processes, infrastructure and systems Design for the seven-step improvement process and procedures Improvement opportunities logged in the CSI register	Results of customer and user satisfaction surveys Input to design requirements Data required for metrics, KPIs and CSFs Service reports Feedback on service design packages RFCs for implementing improvements
Service transition	Test reports Change evaluation reports Knowledge and information in the SKMS Achievements against metrics, KPIs and CSFs Improvement opportunities logged in the CSI register	Results of customer and user satisfaction surveys Input to testing requirements Data required for metrics, KPIs and CSFs Input to change evaluation and change advisory board meetings Service reports RFCs for implementing improvements
Service operation	Operational performance data and service records Proposed problem resolutions and proactive measures Knowledge and information in the SKMS Achievements against metrics, KPIs and CSFs Improvement opportunities logged in the CSI register	Results of customer and user satisfaction surveys Service reports and dashboards Data required for metrics, KPIs and CSFs RFCs for implementing improvements

Chapter 2 : CSI Process

THE SEVEN-STEP IMPROVEMENT PROCESS

- **Identify the strategy for improvement**: Identify the overall vision, business need, the strategy and the tactical and operational goals.
- **Define what you will measure** : Service strategy and service design should have identified this information early in the lifecycle. CSI can then start its cycle all over again at 'Where are we now?' and 'Where do we want to be?' This identifies the ideal situation for both the business and IT.

- **Gather the data** : In order to properly answer the question 'Did we get there?' data must first be gathered. Data can be gathered from many different sources based on goals and objectives identified. At this point the data is raw and no conclusions are drawn.
- **Process the data** : Here the data is processed in alignment with the critical success factors (CSFs) and KPIs specified. The simple goal of this step is to process data from multiple disparate sources to give it context that can be compared. Once we have rationalized the data we can begin analysis.
- **Analyse the information and data** : As we bring the data more and more into context, it evolves from raw data into information with which we can start to answer questions about who, what, when, where and how as well as trends and the impact on the business.
- **Present and use the information** : Here the answer to 'Did we get there?' is formatted and communicated in whatever way necessary to present to the various stakeholders an accurate picture of the results of the improvement efforts.
- **Implement improvement**: The knowledge gained is used to optimize, improve and correct services and processes. Issues have been identified and. now solutions are implemented wisdom is applied to the knowledge.



Chapter 3 : Continual service improvement methods and techniques

METHODS AND TECHNIQUES

- A wide variety of methods and techniques can be used in the continual service improvement (CSI) activities ranging from 'soft and vague' to 'factual and scientific', often providing either both or a mixture of qualitative and quantitative measurement results. To ensure consistency of execution and effective measurement, especially for the activities of gathering and processing data, the techniques and methods that are used should be clearly documented in advance and communicated to the staff who will be responsible for their execution. To increase the trustworthiness of the factual data

delivered to these processes it may be required for these processes to be audited for compliance to the agreed and prescribed methods and techniques.

- **Effort and cost**
  - **cost**
    - Labour cost, Tooling cost, Training cost, Expertise cost
  - **Effort**
    - Implementation(initial), Operation(working), Maintenance (after deployment)

ASSESSMENTS

- Assessments are the formal mechanisms for comparing the operational process environment to the performance standards for the purpose of measuring improved process capability and/or to identify potential shortcomings that could be addressed.
- The advantage of assessments is they provide an approach to sample particular elements of a process or the process organization which impact the efficiency and the effectiveness of the process.
- Assessments involve real costs, staff time and management promotion.

BENCHMARKING

- Benchmarking is a specific type of assessment and is a process used in management, particularly strategic management, in which organizations evaluate various aspects of their processes in relation to best practice, usually within their own sector.
- This then allows organizations to develop plans on how to adopt such best practice, usually with the aim of increasing some aspect of performance.
- A benchmark can be the catalyst to initiating prioritization of where to begin formal process improvement.
- **Benefits of Benchmarking**
- Economy in the form of lower prices and higher productivity on the part of the service provider.
- Efficiency by comparing the costs of providing IT services and the contribution these services make to the business with what is achieved in other organizations, helping the organization to identify areas for improvement.
- Effectiveness of business objectives realized compared with what was planned.

SERVICE MEASUREMENT

- IT services have become an integral means for conducting business. Without IT services many organizations would not be able to deliver the products and services in today's market.
- The server may be up, but because the network is down, the customer is not able to connect to the server. Therefore the IT service was not available even though one or more of the components used to provide the service was available the whole time.
- Measuring at the component level is necessary and valuable, but service measurement must go further than the component level. Service measurement will require someone to take the individual measurements and combine them to provide a view of the true customer experience.

METRICS

- It is important to remember that there are three types of metrics that an organization will need to collect to support CSI activities as well as other process activities:
  - **Technology metrics** These metrics are often associated with component and application based metrics such as performance, availability etc.
  - **Process metrics** These metrics are captured in the form of critical success factors (CSFs), KPIs and activity metrics for the service management processes. They can help determine the overall health of a process.

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- **Service metrics** These metrics are a measure of the end-to-end service performance.

RETURN ON INVESTMENT

- The ROI challenge needs to take into consideration many factors. On one side is the investment cost. This is the money an organization pays to improve services and service management processes.
- On the other side is what an organization can gain in a return. These returns are often hard to define or quantify. In order to be able to compute these items it is important to know the following:
  - What is the cost of downtime? This includes both lost productivity of the customers and the loss of revenue.
  - What is the cost of doing rework? How many failed changes have to be backed out and reworked?
  - What is the cost of carrying out redundant work? Many organizations that don't have clear processes in place and good communication often find that redundant work is being done.
  - What is the cost of late delivery of an application? Does this impact on the ability to deliver a new service or possibly an additional way to deliver an existing service?

SERVICE REPORTING

- This section will look into the various aspects of reporting such as identifying the purpose, the target audience and what the report will be used for.
- The business likes to see a historical representation of the past period's performance that portrays its experience; however, it is more concerned with those historical events that continue to be a threat going forward, and how IT intends to militate against such threats.
- **Reporting policy and rules**
  - An ideal approach to building a business-focused service-reporting framework is to take the time to define and agree the policy and rules with the business and service design about how reporting will be implemented and managed.
  - **This includes:**
    - Targeted audience(s) and the related business views on what the service delivered is
    - Agreement on what to measure and report
    - Agreed definitions of all terms and boundaries
    - Basis of all calculations
    - Reporting schedules
    - Access to reports and medium to be used
    - Meetings scheduled to review and discuss reports.

CSI AND OTHER SERVICE MANAGEMENT PROCESSES

- CSI activities make extensive use of methods and practices found in many ITIL processes throughout the lifecycle of a service.
- **Availability management**
  - Availability management provides IT with the business and user perspective about how deficiencies in the infrastructure and underpinning process and procedures impact the business operation.
- **Capacity management**
  - The capacity management process must be responsive to changing requirements for processing capacity.
- **Service capacity management**
  - The key to successful service capacity management is to pre-empt difficulties, wherever possible. This is another sub-process that has to be proactive and anticipatory rather than reactive.

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- **Component capacity management**
  - A prime objective of the component capacity management sub-process is to identify and understand the capacity and utilization of each of the components of the IT infrastructure.
- **Workload management and demand management**
  - Workload management can be defined as understanding which customers use what service, when they use the service, how they use the service, and finally how using the service impacts the performance of a single or multiple systems and/or components that make up a service.
- **IT service continuity management**
  - Any CSI initiative to improve services needs to also have integration with ITSCM as any changes to the service requirements, infrastructure etc.

Chapter 4 : Organizing for continual service improvement

ORGANIZATIONAL DEVELOPMENT

- organizing for improvement is not restricted to one lifecycle stage or process but is the responsibility of everyone and to some extent all roles.
- There is no single best way to organize, and best practices described in ITIL need to be tailored to suit individual organizations and situations.

FUNCTIONS

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

ROLES

- A number of roles need to be performed in support of CSI.
- A role is a set of responsibilities, activities and authorities granted to a person or team. A role is defined in a process or function. One person or team may have multiple roles
- **Generic service owner role**
  - service is managed with a business focus, the definition of a single point of accountability is absolutely essential to provide the level of attention and focus required for its delivery.
- **Generic process owner role**
  - process owner role is accountable for ensuring that a process is fit for purpose.
- **Generic process manager role**
  - process manager role is accountable for operational management of a process.
- **CSI manager**
  - CSI manager is essential for a successful improvement programme.
- **Business relationship manager**
  - objective of business relationship management is to establish and maintain a good relationship between the service provider and the customer based on understanding the customer and their business drivers.

CUSTOMER ENGAGEMENT

- building customer relationships to facilitate business goals. It is the act of enticing the customer to take action.

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RESPONSIBILITY MODEL – RACI

- RACI is an acronym for the four main roles of being:
  - **Responsible** The person or people responsible for correct execution – for getting the job done
  - **Accountable** The person who has ownership of quality and the end result. Only one person can be accountable for each task.
  - **Consulted** The people who are consulted and whose opinions are sought. They have involvement through input of knowledge and information
  - **Informed** The people who are kept up to date on progress. They receive information about process execution and quality.

COMPETENCE AND TRAINING

- **Competence and skills for service Management**
  - Delivering service successfully depends on personnel involved in service management having the appropriate education, training, skills and experience.
- **Competence and skills framework**
  - Standardizing job titles, functions, roles and responsibilities can simplify service management and human resource management. Many service providers use a common framework of reference for competence and skills to support activities such as skill audits, planning future skill requirements, organizational development programmes and resource allocation.
- **Training**
  - Training in service management helps service providers to build and maintain their service management capability.

Chapter 5 : Technology considerations

TOOLS TO SUPPORT CSI ACTIVITIES

- **IT service management suites**
  - The success of ITIL within the industry has encouraged software vendors to provide tools and suites of tools that are very compatible with the ITIL process framework, providing significant levels of integration between the processes and their associated record types.
- **Systems and network management**
  - These tools are typically specific to the technology platforms that are under management and are used to administer the various domains but can provide a wide variety of data in support of the service management mission.
  - These tools generate error messages for event management and correlation that ultimately feed the incident management and availability management processes.
- **Event management**
  - Specialized event management software can perform event correlation, impact analysis and root cause analysis to separate out these false-positive messages. Events are captured and assessed by rules-based, model-based and policy-based correlation technologies that can interpret a series of events and derive, isolate and report on the true cause and impact.
- **Automated incident/problem resolution**
  - Utilizing data from proactive detection monitors, any component or service outage generates an alert that automatically triggers diagnosis and repair procedures.
- **Knowledge management**
  - There are specialist tools available that support and streamline the discipline of knowledge management. Providing efficient and accurate access to previous cases with proven

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resolution data, these tools address the symptoms associated with the current incident or problem.

- **Requesting services (service catalogue and workflow)**
  - These tools provide the technology required to define the services within a catalogue structure in conjunction with business customers and create a service portal (normally web-based) that allows users to request services.
- **Performance management**
  - Performance management tools allow for the collection of availability, capacity and performance data from a multitude of domains and platforms within the IT infrastructure environment.
- **Application and service performance monitoring**
  - There has always been a challenge related to understanding the true user experience related to service provision. Recognizing this need, many vendors provide tools that monitor the end-to-end delivery of services, using either active or passive technologies, to fully instrument and probe the many components of the service delivery chain.
- **Statistical analysis tools**
  - Most of the tools that are available to support the service management and systems management environments provide reporting capabilities but this is typically not enough to support robust availability management and capacity management capabilities. Raw data from many of the above tools needs to be captured into a single repository for collective analysis.
- **Software version control/software configuration management**
  - These tools support the control of all mainframe, open systems, network and applications software, providing a definitive media library type repository for the development environment. Version information must seamlessly integrate with the CMS and with release and deployment management.
- **Software test management**
  - These tools support the testing and deployment activities of release and deployment management, providing development, regression testing, user acceptance testing and pre-production QA testing environments.
- **Information security management**
  - These tools support and protect the integrity of the network, systems and applications, guarding against intrusion and inappropriate access and usage.
- **Project and portfolio management**
  - These tools support the registration, decision support, costing, resource management, portfolio visibility and project management of new business functionality and the services and systems that underpin them.
- **Financial management for IT Services**
  - Financial management is a critical component of the IT services mission to ensure there are enough financial resources to maintain and develop the IT infrastructure and professional capabilities in support of the current and future needs of the business.
- **Business intelligence/reporting**
  - best-practice processes should determine what support functionality is required but we can be assured that the software industry will continue to develop a wide and varied set of tools that can reduce the administrative overhead of managing processes and improve the overall quality of IT service provision.

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Chapter 6 : Implementing continual service improvement

CRITICAL CONSIDERATIONS FOR IMPLEMENTING CSI

- Before implementing CSI it is important to have identified and filled the critical roles include a CSI manager, service owner and reporting analyst.
- Monitoring and reporting on technology metrics, process metrics and service metrics need to be in place.
- Internal service review meetings need to be scheduled in order to review from an internal IT perspective the results achieved each month.
- **WHERE DO I START?**
    - One way is to identify a certain service pain point such as a service that is not consistently achieving the desired results.
    - Work with the service owner to validate the desired results and the trend results over the past few months.
    - If you don't feel you have adequate data from monitoring or from another process then the first step is to identify what to monitor, define the monitoring requirements, and put in place or begin using the technology required for monitoring.
        - **Where do I start – the lifecycle Approach**
            - Another approach is to start looking at the output from the different lifecycle stages. For example, service design personnel need to monitor and report on their activities and, through trend evaluation and analysis, identify improvement opportunities to implement.
        - **Where do I start – the functional group approach**
            - Perhaps your organization is experiencing a lot of failures or issues with servers. If this is the case, it may be a good opportunity to focus CSI activities within the functional group responsible for the servers.

GOVERNANCE

- No matter if you are implementing CSI around service management or services, it is critical that governance is addressed from a strategic view.
- Implementing an IT service management (ITSM) process governance organization will support the development of, and transformation to, a process and service-based organization and provide the organizational infrastructure to manage process improvement initiatives.
- **Business drivers**
    - The implementation of a standard ITSM process and governance is deemed as imperative to support current and future business plans:
    - Support the organization's vision
    - Provide standard IT processes and a stable and reliable IT environment to enable timely and efficient integration of new services and systems
    - Provide process policies, standards and controls to comply with internal audit and external regulatory and legislation requirements
- **Process changes**
    - Implementing CSI will have an impact on many parts of the IT organization. Processes, people, technology and management will undergo change. CSI needs to become a way of life within the organization. This may require new management structure, new technology and changes to processes to support CSI, and people will need to be trained and understand the importance of CSI within the organization.

CSI AND ORGANIZATIONAL CHANGE

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- Kotter, Professor of Leadership at Harvard Business School, investigated more than 100 companies involved in, or having attempted, a complex change programme and identified eight main steps that need to be implemented in order to successfully change. The eight steps, which apply equally to ITSM implementation programmes.

Step		Reasons for failure (quotes)
1	Create a sense of urgency	'50% of transformations fail in this phase' 'Without motivation, people won't help and the effort goes nowhere' '76% of a company's management should be convinced of the need'
2	Form a guiding coalition	'Underestimating the difficulties in producing change' 'Lack of effective, strong leadership' 'Not a powerful enough guiding coalition … opposition eventually stops the change initiative'
3	Create a vision	'Without a sensible vision, a transformation effort can easily dissolve into a list of confusing, incompatible projects that can take the organization in the wrong direction, or nowhere at all' 'An explanation of 5 minutes should obtain a reaction of "understanding" and "interest"'
4	Communicate the vision	'Without credible communication, and a lot of it, the hearts and minds of the troops are never captured' 'Make use of all communications channels' 'Let the managers lead by example … "walk the talk"'
5	Empower others to act on the vision	'Structures to underpin the vision … and removal of barriers to change' 'The more people involved, the better the outcome' 'Reward initiatives'
6	Plan for and create quick wins	'Real transformation takes time … without quick wins, too many people give up or join the ranks of those opposing change' 'Actively look for performance improvements and establish clear goals' 'Communicate successes'
7	Consolidate improvements and produce more change	'Until changes sink deeply into the culture, new approaches are fragile and subject to regression' 'In many cases, workers revert to old practice' 'Use credibility of quick wins to tackle even bigger problems'
8	Institutionalize the change	'Show how new approaches, behaviour and attitude have helped improve performance' 'Ensure selection and promotion criteria underpin the new approach'

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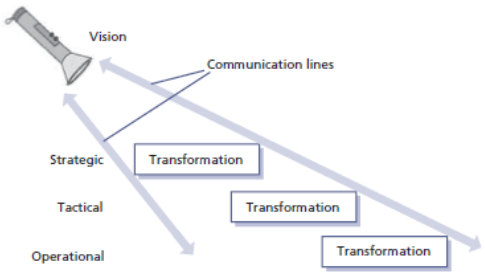
COMMUNICATION STRATEGY AND PLAN

- Timely and effective communication forms an important part of any service improvement project. In an effort to transform an organization from performing CSI activities ad hoc to undertaking more formal and ongoing CSI activities, it is critical that participants and stakeholders are informed of all changes to the processes, activities, roles and responsibilities.
- The goal of the communications plan is to build and maintain awareness, understanding, enthusiasm and support among key influential stakeholders for the CSI initiative.
- When developing a communication plan, it is important to realize that effective communication is not based solely on a one-way flow of information, and it is more than just meetings.
- **The plan should include a role to:**
    - Design and deliver communications to the different CSI roles, stakeholders such as other ITSM process roles and identified target audiences
    - Identify forums for customer and user feedback
    - Receive and deliver responses and feedback to the project manager and/or process team members.
- **Key activities for the communications plan include:**
    - Identifying stakeholders and target audiences
    - Developing communications strategies and tactics
    - Identifying communication methods and techniques
    - Developing the communications plan (a matrix of who, what, why, when, where and how)
    - Identifying the project milestones and related communications requirements
- **Defining a communication plan**
    - **Who is the messenger?** This is often overlooked when assessing the importance of aligning the messenger with the message.
    - **What is the message?** Define the purpose and objective of the message.
    - **Who is the target audience?** The target audience for CSI could be senior management, mid-level managers or the staff
    - **Timing and frequency of communication** Be sure to plan and execute your communication in a timely manner.
    - **Method of communication** The old standby of sending emails and putting something on the web can work for some forms of communication, but in order to manage change effectively it is important to have a number of face-to-face meetings where there is an opportunity for two-way communications to take place.
    - **Provide a feedback mechanism** Be sure to provide some method for employees to ask questions and provide feedback on the change initiative.
- **Communication transformation**
    - The strategic management level usually initiates the communication about new initiatives and this should be true for implementing CSI within your organization. The CSI initiative is handed down from the strategic level to the tactical level and then to the operational level.



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- Because each management level has its own separate transformation processes they fail to appreciate the feelings of the other levels. This is most evident for operational level staff, who feel particularly vulnerable if they have not been involved in the discussions. Yet the commitment and energy of operational level staff are essential to the success of any organizational change.

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