Introduction to ITIL

Overview

The **ITIL V3 Foundations Certificate Training** is a course leading to the **Information Systems Examination Board (ISEB) Foundation Certificate in IT Service Management**. The syllabus for the certificate consists of the **Information Technology Infrastructure Library (ITIL)** version 3 core books.

The course is made up of a series of formal lectures, a number of practical assignments to be carried out in syndicate groups, and some practical exam preparation.

At the end of the course you will be given a mock exam. This will give you an opportunity to prepare for the examination.

1. Learning Objectives
- A basic understanding of the ITIL® framework
- How ITIL® can be used to enhance the quality of IT service management within an organization
- Comprehension and / or awareness of key areas of the 5 ITIL® core books:
    o Service Strategy
    o Service Design
    o Service Transition
    o Service Operation
    o Continual Service Improvement
- Prepare to sit the ISEB Foundation Certificate Exam

2. Why Do We Need IT Service Management?
- Increased dependency on IT services
- Higher visibility of IT service failure
- Increased complexity of IT services and service provision
- Higher customer expectations
- External influences due to untied customers
- Charging for IT services

3. What is ITIL?
- IT Service Management as a practice
- Produced by Office of Government Commerce (OGC)
- Non proprietary and Crown Copyright
- Published by The Stationery Office
- Guidance rather than standard
- Organizations will need to adopt and adapt the processes
- Supported by software solutions

The UK's **Office of Government Commerce (OGC)** has documented a set of processes and procedures for the delivery and support of high quality IT services that are designed and managed to meet the needs of an organization. These processes and procedures are referred to as the **Information Technology Infrastructure Library (ITIL)**. As of version 3, ITIL comprises five **core books**.

ITIL is:
▪ Independent
▪ Public domain
▪ Business focused
▪ Has a quality and holistic approach
▪ Is the worldwide de-facto standard for ITSM Good Practice

ITIL is not described as a *standard* but as a description of *good practice* to be adopted by an organization and adapted to meet its specific needs.

"Good Practice" is usually used as a strategic term for, in IT for example, the integration of guidance from multiple frameworks, of which ITIL is one.

"Best Practice" is proven activities or processes that have been successfully used by multiple organizations and based on repeatable procedures that have proven themselves over time for large numbers of people. ITIL core is an example of Best Practice.

In Version 3, ITIL is now also classed as a *service*, as it brings not only documented best practice, but complementary and web services to the **ITSM (IT Service Management)** community.

ITIL is not intended to be rigidly applied!

4. The ITIL Core
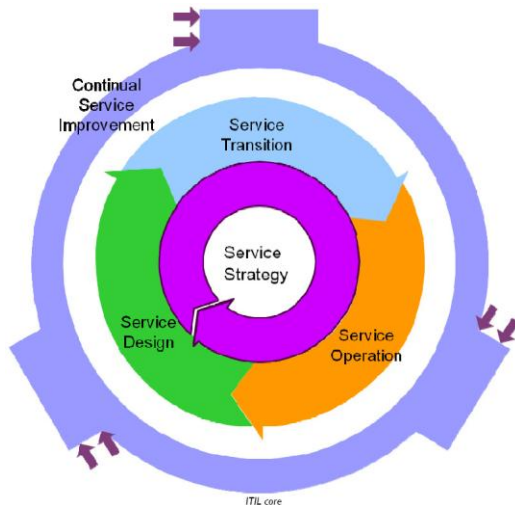
ITIL core

ITIL V3 is made up of five books, referred to as the **ITIL core**.
▪ Service Strategy (SS)
▪ Service Design (SD)
▪ Service Transition (ST)
▪ Service Operation (SO)
▪ Continual Service Improvement (CSI)

The contents of this course will contain short forms and acronyms, such as those listed above (others will be explained in each section).

You will see the following type of reference throughout the course notes: **SD 2.4.2**.
- **SD** - refers to the book being used (for this example **S**ervice **D**esign)
- **2.4.2** - refers to Chapter **2**, Section **4**, Subsection **2**

5. Goals of IT Service Management
- Clear view of IT capability
- Understanding of customer needs
- Professional approach and processes
- Focus on business value through quality and availability of services
- Enhanced customer satisfaction
- More motivated IT staff
- Increased profitability

Effective and formally defined IT Service Management will give an organization a clear view of its IT capabilities. It will give IT departments a precise understanding of the customer's needs, drivers, and motivation. The interlocking IT Service Management disciplines will allow the needs of the customer to be matched by the capability of the services being offered.

In documenting best practice, ITIL has set out a professional approach to the provision of IT services. In the ITIL environment, measurement and monitoring are critical. ITIL enables service managers to focus on the needs of the business and to measure the performance of the services offered, reviewing and improving on a continual basis.

Critical among the Service Management disciplines is **Availability Management**. If a service is not available, then it's not a service! All the service support and service delivery disciplines work together to deliver agreed levels of service availability to their customers. Delivery of service availability to meet customer needs benefits the whole organization. Customer satisfaction is greatly increased, as is the motivation of those staff involved in service provision.

Overall, professional IT Service Management disciplines will deliver improved quality of service to customers enabling the business to reduce costs and derive higher revenues, and therefore increased profit.

6. Service Management as a Practice
- A **Service** is a means of delivering value to customers, by facilitating **outcomes** customers want to achieve without the ownership of specific **costs and risks**
- **Service Management** is a set of organizational capabilities for providing **value** to customers in the form of services

Users and customers want to be able to (for example) send invoices and store or retrieve customer information (**outcomes**). Users and customers would like to able to control what that service does but not to be accountable for all the specific costs and risks. Users and customers do not want to buy, own, or manage hardware, software, support staff or machine rooms (**specific costs and risks**). Fortunately, this is where the IT Service Provider can help the business with specialized knowledge, experience, and confidence to control these costs and risks.

The business agrees to pay for the **service** provided by the IT Service Provider under specific terms and conditions often in the form of a **Service Level Agreement** (or **Contract**).
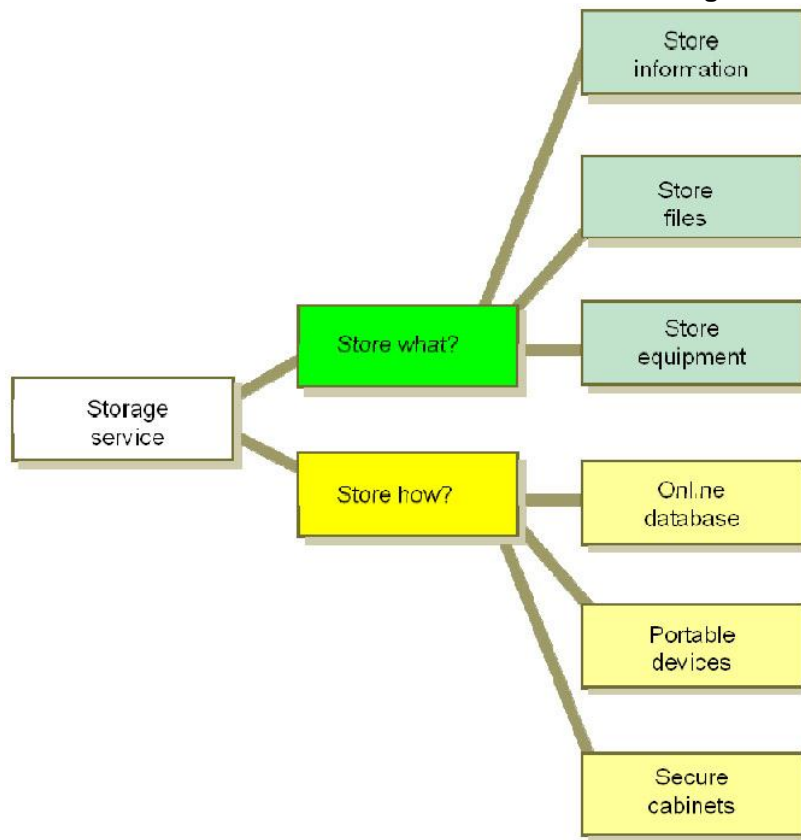
Service Example

Good practice results from a combination of effects.
- Sources - e.g. Standards and Industry Practices
- Enablers - e.g. Employees and Customers
- Drivers - e.g. Substitutes and Regulators
- Scenarios - e.g. Competition and Compliance

Public frameworks and standards (such as ITIL) are attractive when compared with **proprietary** knowledge deeply embedded in organizations and therefore difficult to adopt, replicate, or transfer, even with the co-operation of the owners.

Best practice often presents a *generic* view of proven quality practices, but it is unlikely that every organization can, or will wish to, implement a solution in an *identical* way. Thus organizations *adapt and adopt*, developing *good* practice within their own enterprise, which may feed back into the evolution/improvement of *best* practice.

It is far easier to adopt ITIL than try to document and replicate 25 years of system knowledge built up by a senior technician. This knowledge is often littered with poor practice and difficult for others to pick up.

Publicly available frameworks and standards such as ITIL, COBIT, CMMI, PRINCE2, ISO 9000, ISO/IEC 20000, and ISO/IEC 27001 are validated across a diverse set of environments rather than the limited experience of a single organization or person. The knowledge of public frameworks is more likely to be widely distributed amongst the professionals through publicly available training and certification. This results in it being far easier to acquire such knowledge through the labor market.

7. Processes, Functions, and Roles

- **Process** - a set of co-ordinated activities combining resources and capabilities to produce an outcome that creates value for the customer
- **Function** - units of organizations specialized to perform certain types of work and responsible for specific outcomes
- **Role** - a position, responsibility or duty within a process or function

An example of a process is that for dealing with **incidents**. The co-ordinated **activities** in the process involve logging the call, prioritizing it, diagnosing it, and so on. The outcome that creates value is the user (hopefully) being able to work again.

A Service Desk handling the process is a **function**, specialized to log calls and communicate with users **(**amongst other activities). They are often responsible for specific outcomes, like closing calls.

It is possible in many organizations for a process and a function to have the same name (consider a "Change Management" *process* and a group of *people* you call "Change Management").

All processes must have certain **characteristics**:

- **Measurable** - we must be able to measure the process.

  The performance of the process is incredibly important. Managers will want to measure the cost and quality. People involved operationally with the process are concerned with how long it takes and how easy it is.
- **Specific results** - the reason a process exists is to deliver a specific result; this result must be individually identifiable and countable
- **Customers** - every process delivers its primary results to a customer or stakeholder; they may be internal or external to the organization but the process must meet their expectations
- **Responds to a specific event** - while a process may be ongoing or iterative, it should be traceable to a specific trigger
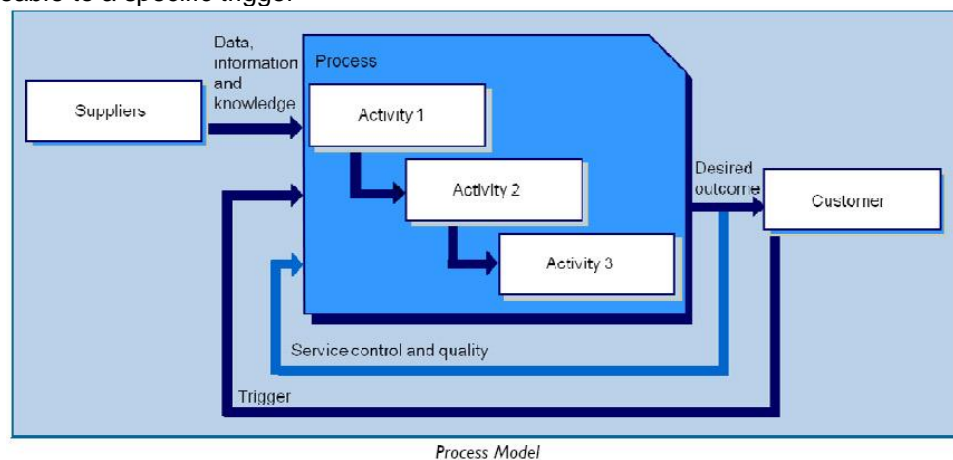
Process Model

The implementation of ITIL as a practice is about preparing and planning the effective use of **The Four Ps**:

- People

- Processes
- Products
- Partners

8. Service and Process Owners

ITIL has two key roles that assist in the delivery of quality services:
- Service Owner
- Process Owner

Service Owners provide focus for their Services. The Service Owner is responsible to the customer for the initiation, transition, and ongoing maintenance and support of a particular service. The Service Owner has the following responsibilities:
- Act as prime customer contact for all service related enquiries and issues
- Ensure that the ongoing service delivery and support meet agreed customer requirements
- Will identify opportunities for Service Improvements, discuss with the customer, and will raise the RFC (Request For Comments) for assessment if appropriate
- Will liaise with the appropriate Process Owners throughout the Service Management lifecycle
- Will solicit required data, statistics and reports for analysis and to facilitate effective service monitoring and performance
- Will be accountable to the IT Director for the delivery of the service

The **Process Owner** is responsible for ensuring that all activities defined within the process are undertaken. The Process Owner's responsibilities include:
- Define the process strategys
- Assist with process design
- Ensure that appropriate process documentation is available and current
- Define appropriate policies and standards to be employed throughout the process
- Periodically audit the process to ensure compliance to policy and standards
- Periodically review the process strategy to ensure that it is still appropriate and change as required
- Communicate process information or changes as appropriate to ensure awareness
- Provision of process resources to support activities required throughout the Service Management lifecycle
- Ensure process technicians have the required knowledge and the required technical and business understanding to deliver the process, and understand their role in the process
- Review opportunities for process enhancements and for improving the efficiency and effectiveness of the process
- Address issues with the running of the process
- Provide input to the on-going Service Improvement Program

9. RACI Model

A key characteristic of a process is that all related activities need not necessarily be limited to one specific organizational unit.

Since processes and their component activities run through an entire organization, individual activities should be mapped to defined roles. The roles and activities can then be coordinated by process managers.

Once detailed procedures and work instructions have been developed, an organization must map the defined roles and the activities of the process to its existing staff.

To assist with this task an authority matrix is often used within organizations indicating <u>roles and responsibilities in relation to processes and activities. The **RACI Model** is such a matrix.</u>
- **R** - **Responsible** - the person or people responsible for getting the job done
- **A** - **Accountable** - only ONE person can be accountable for each task
- **C** - **Consulted** - involvement through input of knowledge and information
- **I** - **Informed** - receiving information about process execution and quality

There should only be <u>one person accountable for an activity</u>, although <u>several people may be responsible for executing parts of the activity</u>.
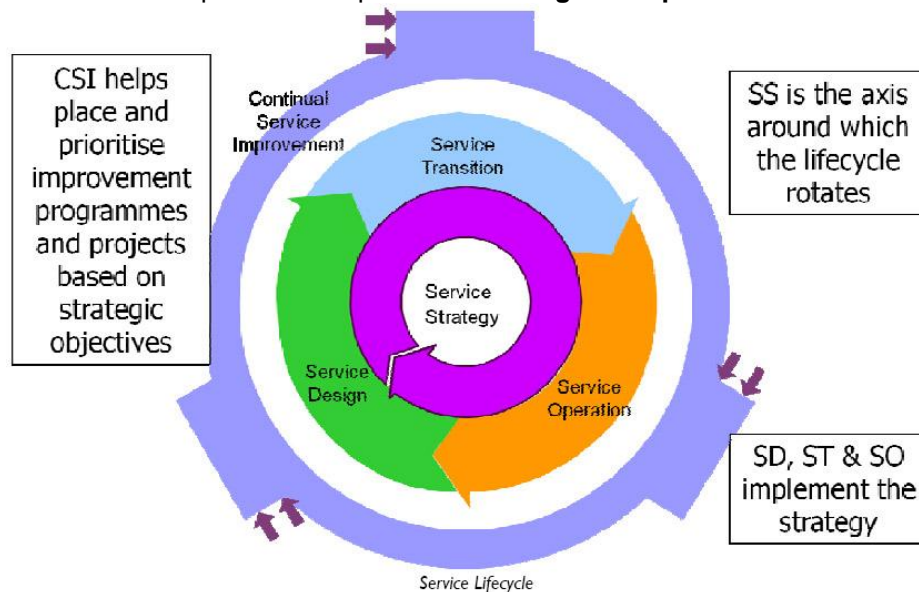
In this model, responsible means end-to-end responsibility for the process. <u>Responsibility should remain with the same person for all activities of a process.</u>

The **authority matrix** clarifies to all involved which activities they are expected to fulfill, as well as identifying any gaps in process delivery and responsibilities. It is especially helpful in clarifying the staffing model necessary for improvement.

10. The Service Lifecycle

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

CSI helps place and prioritise improvement programmes and projects based on strategic objectives

SS is the axis around which the lifecycle rotates

SD, ST & SO implement the strategy

Service Lifecycle

Exercises—Course Format and ITIL Introduction

Answer the following questions and then compare your answers to the point locations shown beside the questions.

1. What are the "4 P's"? - See point "7"
2. Explain the "RACI" model - See point "9"
3. What are the names of the 5 core books - See point "4"
4. What are the goals of IT Service Management - See point "5"

Service Strategy

1. Session Objectives

On completion of this session you should be able to:
- State the main goals and objectives of Service Strategy
- Explain how Service Assets are a basis for Value Creation
- Describe Value Creation through services
- Identify the four activities of:
  o Defining the market
  o Developing the offerings
  o Developing strategic assets
  o Preparing for execution
- Identify the processes of:
  o Service Portfolio Management
  o Demand Management
  o Financial Management

2. Goals

"To enable service providers to think and act in a strategic manner to achieve strategic goals or objectives through the use of strategic assets."

Service Strategy focuses on how to transform service management into a strategic asset. Providers benefit from seeing the relationships between various services, systems, or processes they manage and the business models, strategies, or objectives they support.

SS should be able to answer questions such as:
- What services should we offer and to whom?
- How do we differentiate ourselves from competing alternatives?
- How do we truly create value for our customers?
- How do we capture value for our stakeholders?
- How can we make a case for strategic investments?
- How can financial management provide visibility and control over value-creation?
- How should we define service quality?
- How do we choose between different paths for improving service quality?
- How do we efficiently allocate resources across a portfolio of services?
- How do we resolve conflicting demands for shared resources?

3. Value Creation

Problem:
- Customers do not buy services - they fulfill needs
- What the customer values often differs from the provider's impression

Solution:
- Providers adopt a marketing mindset
- Identify how value can be added to service provision
- Create value for customers through the effects of utility and warranty to engender confidence in the customer

From the customer's perspective, the business value of a service is created by the combination of two elements:
- **Utility** - the functionality offered by a product or service from the customer's perspective (What the customer gets / fitness for *purpose*)
- **Warranty** a promise or guarantee that a product or service will meet its agreed requirements (How it is delivered / fitness for *use*)

  Warranty may be a formal agreement such as a Service Level Agreement or Contract, or may be a marketing message or brand image.
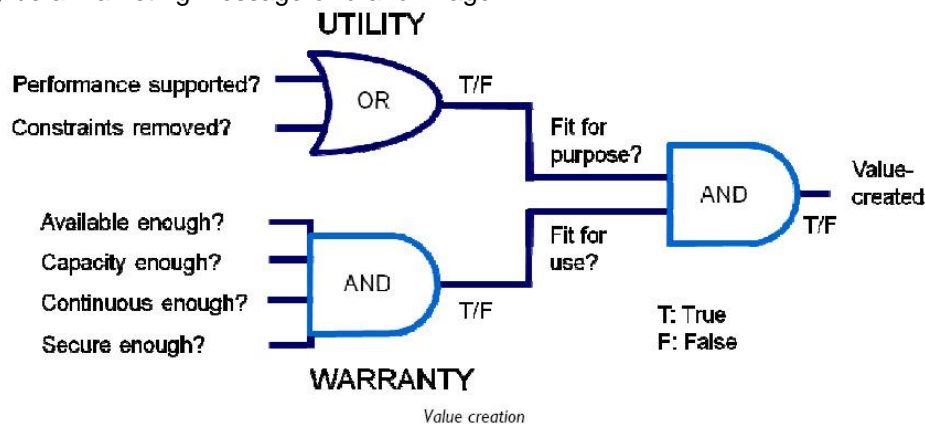
Value creation

4. Resource and Capability

Resources and capabilities are types of **service assets**. Organizations use them to create value in the form of **goods** and **services**.
- **Resource** is a generic term that includes financial capital, infrastructure, applications, information, people, money or anything else that might help to deliver an IT service; resources are considered to be **assets** of an organization.
- **Capability** is the ability of a service organization, person, process, application, configuration item or IT service to carry out an activity; capabilities are **intangible assets** of an organization

Capabilities like management, organization, people, processes, and knowledge are used to transform resources into valuable services.

Capabilities represent an organization's ability to coordinate, control, and deploy resources to produce value. They are experience-driven, knowledge-intensive, information-based, and embedded within an organization's people, systems, processes, and technologies.

Where two providers may have similar resources, what will distinguish one from the other may be their capabilities, which will be reflected in their relative performance.

Resources and capabilities are seen as **Service Assets**, along with **Business Units** (described as bundles of assets to create value for customers in the form of goods and services) and **Service Units** (as business units but specialize in creating value in the form of services).

5. Service Strategy Activities

Service Strategy can be conceptualized as four activities:
- Defining the Market
- Developing the Offerings
- Developing the Strategic Assets
- Preparing for Execution

Define the Market

- Providers differentiate themselves on the basis of services offered — that is, have strategies for their services
- Customers view services as part of a business strategy
- Providers should understand the customer in terms of outcomes services can deliver to add value to the performance of business assets
- Providers should also understand opportunities by having good insight into the customer's business and outcomes by establishing good business relations with customers
- Classification and visualization of services deliver benefits to providers by identifying potential shortfalls in performance

Develop the Offerings

- Identify the market space - a set of business outcomes facilitated by a service; in terms of a set of opportunities for service providers to deliver value to a customer's business through one or more services
- Create the Service Portfolio - containing the Service Catalog and Service Pipeline to represent all the commitments made by the service provider across all customers and market spaces

Develop Strategic Assets

- Service Providers should treat service management as a strategic asset
- They should aim to develop continuing relationship with customers through perceived benefits
- This becomes the basis for investing further in service management and development of capabilities and resources
- Service Management can be seen as a closed loop control system

Prepare for Execution

- Providers should first make their own strategic assessment of what actions to take then set clear objectives of these actions that represent the expected results and that align the way their assets are controlled to meet customer outcomes
- Critical success factors should be defined to determine the success or failure of the strategy and determine success in the market space

- Consideration should be given to prioritizing investment, exploring business potential, aligning with customer needs, and differentiation in the market space

6. Service Packages

Defining the Market
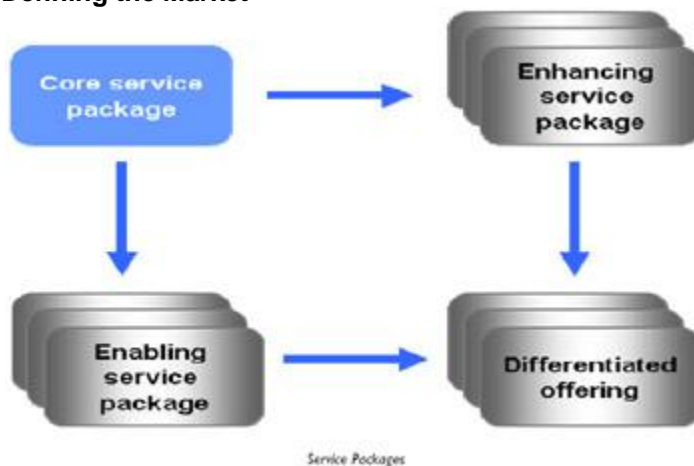
Service Packages

A **Service Package** is a detailed description of an IT service that is available to be delivered to customers. This should be part of the **Service Portfolio** (see below). A Service Package can include one or more **Service Level Packages** and one or more **core** and **supporting** services.
- **Core Services** deliver basic outcomes desired by customers, the basis of utility and warranty

  Core services can be (for example) infrastructure services providing a platform with a defined level of Utility and Warranty.
- **Supporting Services** are either enhancing or enabling services
  - **Enabling Services** are necessary for the customer to utilize the core service
  - **Enhancing Services** are "excitement" factors which can be the basis for differentiation

Service Level Packages (SLP) are associated with a set of service levels, pricing, and a core package. Each SLP is designed to meet the needs of a particular pattern of business activity.

7. Service Pipeline

Developing the Offerings

*Service Pipeline as part of the Service Portfolio*
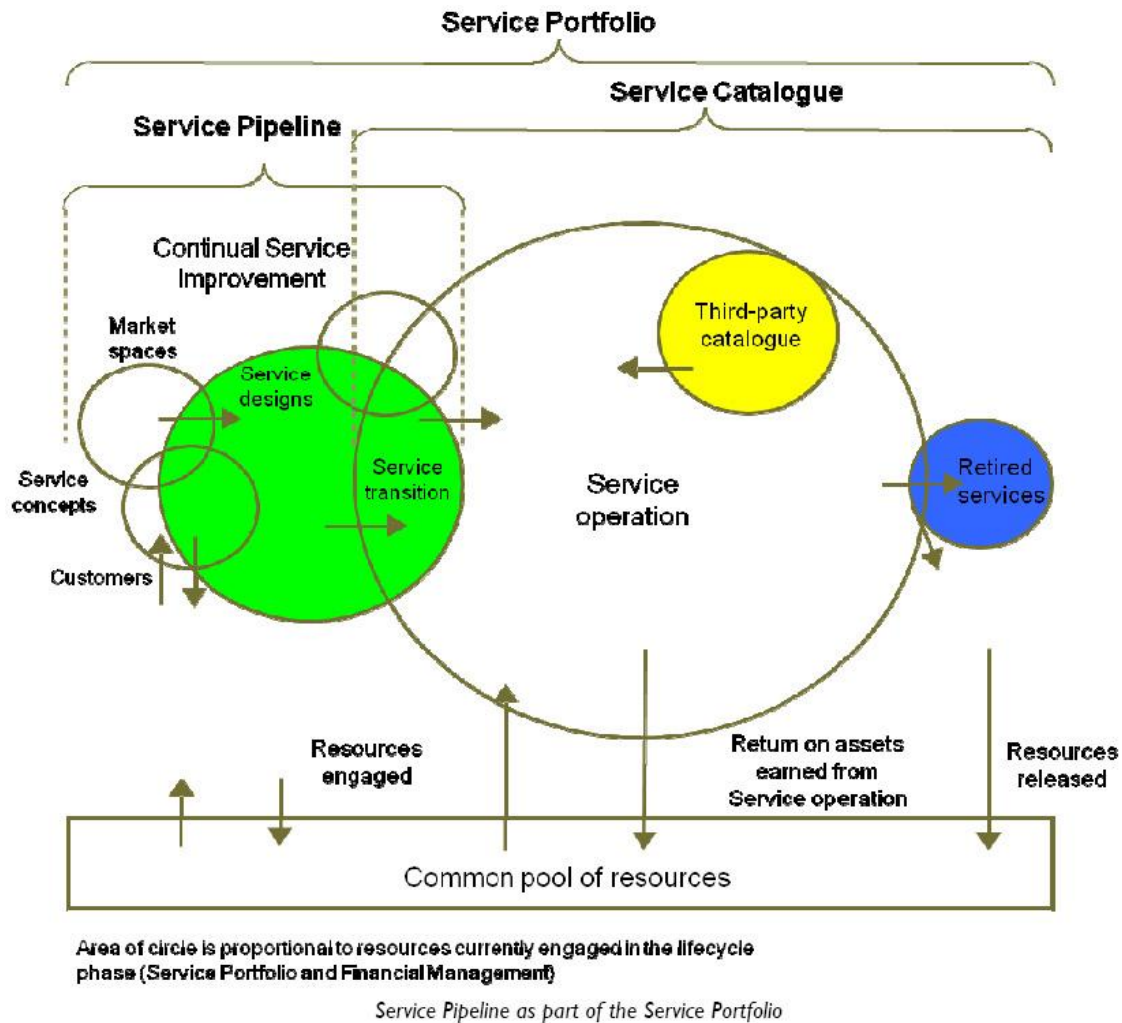
The **Service Portfolio** contains information about the offerings. It can be defined as three phases:
- **Service Pipeline -** services under development for customers or markets contents are a good indication of the "health" of the provider

  It is fed new concepts and ideas for improvement by SS, SD, and CSI (SS 4.2.3.2)
- **Service Catalog -** consists of services presently active in service operations phase and/or approved to be offered to customers (SS 4.2.4.1)
- **Retired Services -** retired or phased out services, not generally available, but knowledge stored for future use (4.2.3.4)

8. Service Management as a Closed Loop Control System

Developing Strategic Assets / SS 4.3.1

Service Management capabilities (a set of organizational capabilities specialized in providing value to customers in the form of services) function together as a system for creating value. Here **Service Assets** are seen as the source of value and Customer Assets are the recipients. **Service potential** is converted into **performance potential** of customer assets.

Service Management as a Closed Loop Control System
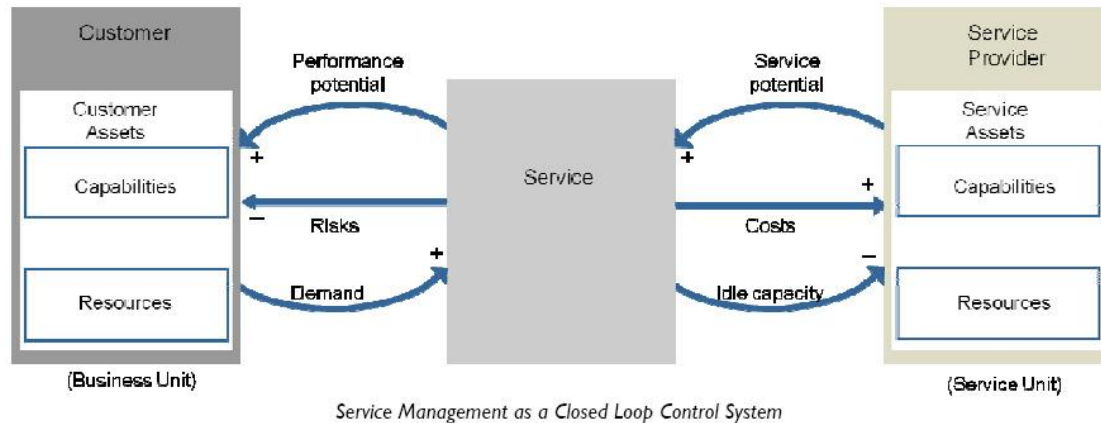
As a **closed loop control system**, service management:
- Develops and maintains service assets
- Understands the performance potential of customer assets
- Maps service assets to customer assets through service
- Designs, develops, and operates suitable services
- Extracts service potential from service assets
- Converts service potential into performance potential
- Converts demand from customer assets into workload for service assets
- Reduces risks for the customer
- Controls cost of providing services

9. Service Models

Preparing for Execution / SS 7.2.1
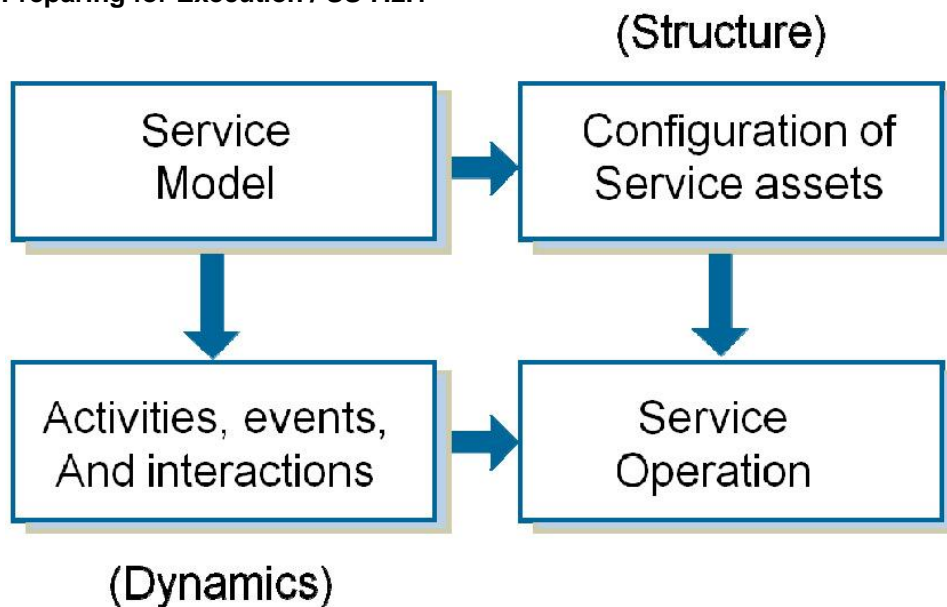
Structure and dynamics of services

Service Models codify the service strategy for a market space and are inputs to Service Design. They describe how service assets interact with customer assets and create value for a given portfolio of contracts. They also describe the **structure** and **dynamics** of services.
- **Structure -** assets needed and configuration patterns
- **Dynamics -** activities and flow of resources; their coordination and interactions

These are influenced by the Utility and Warranty to be delivered.

10. Service Portfolio Management

SS 5.3
- Definition: "The Service Portfolio describes provider's services in terms of business value"
- Service Portfolio Management is owned by Service Strategy
- Service Portfolio forms part of the Service Management Knowledge System (SMKS)
- The Service Portfolio is a document in the Configuration Management System

SD 3.6.2

The original inception and ownership of the **Service Portfolio** comes from Service Strategy. It is part of the SMKS and it is considered as a Configuration Item (CI).

It is a critical document, providing the link between services and is a repository for up-to-date service information.

Should answer the questions:
- Why should a customer buy these services?
- Why buy them from us?
- What are the pricing or chargeback models?
- What are our strengths/weaknesses/priorities/risks?
- How should we resource our capabilities?

11. Service Portfolio Contents
- **Service Status** is used to track progression of services through their Lifecycle Requirement to Retirement
- Service Portfolio differs from the Service Catalog in that it contains *every* service and its status, including those currently required by the business (as a **Service Pipeline**), under development, delivered, and retired

Service Portfolio Contents
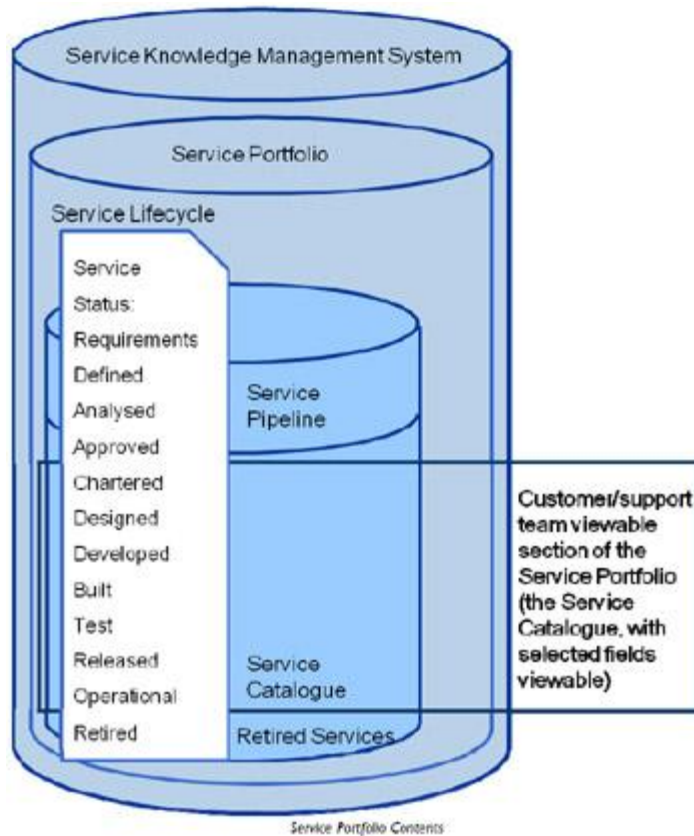
12. Financial Management

SS 5.1.1

Financial Management is increasingly part of an IT organization's activities. It helps with:
- Enhanced decision making
- Speed of change
- Service Portfolio Management
- Financial compliance and control
- Operational control
- Value capture and creation

Financial Management supports Service Strategy by (for example) providing business with the value of IT services and assets, identifying value of service received, enabling demand modeling and management, supporting differentiation strategies, identifying cost of services and resulting competitive marketing (value potential), and identification and prioritization of improvement strategies.

SS 5.2.1

Key aspect in SS (and also in CSI) is **Return on Investment (ROI)**, based on a business case for which financial analysis is central.

13. Demand Management

SS 5.2

Demand Management supports Service Strategy by enabling visualization of **Patterns of Business Activity (PBA)** and plans in terms of demand for services and underlying service assets.

PBAs can be matched with **User Profiles (UP)**, which relate user roles and responsibilities.
- Poorly managed demand can expose providers to risk
- Demand and capacity are closely coupled in service systems
- The productive capacity of resources should be adjusted to demand forecasts and patterns
- Business activities drive demand for services
- Patterns of Business Activity (PBA) can be identified, codified, and catalogd
- Underpins a systematic approach to managing customer demand

Exercises—Service Strategy

Answer the following questions and then compare your answers to the point locations shown beside the questions.
1. What is the definition of "Utility " and "Warranty" See point "3"
2. Are "capabilities" intangible assets for an organization? See point "4"
3. What are some of the questions that Service Portfolio Management will answer? See point "10"

Service Design

1. Session Objectives

On completion of this session you should be able to:
- Define the goals, scope, and value of Service Design
- Know the importance of People, Processes, Products, and Partners
- Differentiate between various sourcing strategies
- Identify the five major areas of design
  - Service Solutions
  - Service management system and tools
  - Management and technology architectures
  - Processes
  - Measurement systems, methods, and metrics
- Describe fully the Service Level Management Process

- Explain the process objectives and roles for:
  - Service Catalog Management
  - Capacity Management
  - Availability Management
  - IT Service Continuity Management
  - Information Security Management
  - Supplier Management

2. Goals

SD 2.4.1

Service Design means "The design of new or changed services for introduction into the live environment". It involves using a holistic approach to determine the impact of the introduction of changes upon the existing infrastructure services and management processes

New or changed services, processes, and technology should not be implemented in isolation. Service Design is required to enable the continuation of all current operational aspects, considering the impact of changes on these at the *outset* and not as an afterthought when the change is about to go live.

Service Design relates to *significant change* rather than everyday amendments. The classification of significant will vary from organization to organization.

SD 3.1

This list is of the lower level goals required to make up good service design:
- Satisfy the business need but relate to risk compliance security quality to promote consistent cost effective solutions
- Design for the future in order to make enhancement simple; reducing the risk of soaring costs when services require altering
- Design should identify and manage risks and mitigate where possible before the service goes live
- Ensure that processes have the appropriate measurement and metrics in place to be successfully monitored
- Production of plans, processes, policies, architectures, and documents to support the design of quality solutions for now and the future
- Recruit and retain resources with the requisite skills
- Reduction of rework and enhancement of services leading to higher quality stable services

3. Value

SD 2.4.3

There are many ways that the introduction of Service Design will help the business.

For example, improved service performance is achieved by involving areas such as capacity and availability management finance and ITSCM in the design and understanding the potential impact of the new/changed service on the forward plans well before it goes into production.

Improved Design assists the business by:
- Reduced Total Cost of Ownership
- Improved quality and consistency of service
- Alignment and effective performance of services
- Improved governance and decision making
- Effective IT and Service Management processes

4. Scope

SD 2.4.2

The scope of Service Design compasses:
- New or changed services
- Service Management systems, particularly the Service Portfolio
- Technology architecture and management systems
- Processes
- Measurement methods and metrics

These aspects are examined in more detail further in the session.

5. Delivery of Quality Service

SD 2.4.2

Cost effective, business aligned, quality services are dependent on quality design processes.

It is fundamental to Service Management that the Service Design function is understood and supported.
- Well designed services are essential
- New or changed services can impact on other existing services
- Each service is the result of the balanced interaction of People, Processes, Products, and Partners (The Four Ps)

6. The Four Ps

SD 2.4.2

The implementation of ITIL as a practice is about preparing and planning the effective use of **People, Processes, Products, Partners**.

ITIL emphasizes the management of services throughout their lifecycle, particularly by control through processes.

However, these on their own will not work without consideration of the other three Ps when planning, designing, and delivering services.

People

Sufficient staff is needed to undertake the work and must have the necessary skills to undertake their roles.

An example skill would be customer facing skills for the Service Desk.

Investment in training is essential to ensure that people fully understand what is required and how they can contribute. A key area is to ensure that there is good communication. Different levels will need different channels and types. Communication planning is essential especially during the introduction of change - perhaps the use of a RACI matrix?

Process

There are two areas where process definition together with roles and responsibilities are important. Firstly the creation of the Service Design processes. These like other areas such as planning and testing often get missed in the rush to create something. This is a false economy, as reactive situations bring with them poor communication, lack of focus on the important issues, and generally cause additional risk. There is no measurement so there is less opportunity for process improvement.

Secondly, to be operationally effective the new services or service management initiatives require processes to provide stability. The key considerations are:
- Supporting processes defined and documented
- Streamlined to be effective
- Realigned to changes in requirements
- Activities undertaken are measurable
- Version controlled

Products

Considers the products that support Service Management, such as outputs from processes, services, operational stability. Tools and technology should be used to facilitate these and how they combine to provide higher quality services.

Partners

This refers to elements of the service delivered by specialist suppliers (maintainers, vendors, outsourcing, and so on). The key features of partner relationships are:
- Appropriate agreements
- Clear communication channels
- Documented agreements and contracts

7. Sourcing Options

SD 3.11.1

IT and business processes are complex and may require specialist expertise. This is often achieved with involvement of third parties.

The decision as to whether to use a third party is based on:
- Risk
- Internal expertise
- Cost / benefit

SD 3.11

The following list of sourcing options is summarized from table 3.2 in SD:
- In-sourcing - internal resources for all aspects
- Outsourcing - use of external resources for well defined areas
- Co-sourcing - mixture of internal and external resources
- Partnership / Multi-sourcing - two or more organizations share provision of services over the complete lifecycle
- Business Process Outsourcing (BPO) - business processes outsourced to organizations (to provide payroll, accounts, and so on)
- Application outsourcing - such as ASP shared computer based services via network (on demand software)
- Knowledge Process Outsourcing (KPO) - extension to BPO with the addition of business expertise

Suppliers can also be classed as one of the following types:
- Type I - Internal Service Provider
- Type II - Shared Services Unit
- Type III - External Service Provider

8. Five Key Aspects to Service Design

The next few sections cover the five key aspects to Service Design in more detail:s
- Designing service solutions
- Design of service management systems and tools
- Design of management and technology architectures
- Design of processes
- Design of measurement systems, methods and metrics

9. Designing Service Solutions

Approach

SD 3.6.1

This section looks at the specifics for the first element - Design of Service Solutions. It shows the underlying need for service design itself to be a process and that major enhancement and introduction of major changes should always use a project management approach.
- Create a repeatable process
- Ensure cost, quality, and functionality

- Iterative and incremental
- Assisted by Project Management

SD 3.6

Aligning new Services to Business Requirements
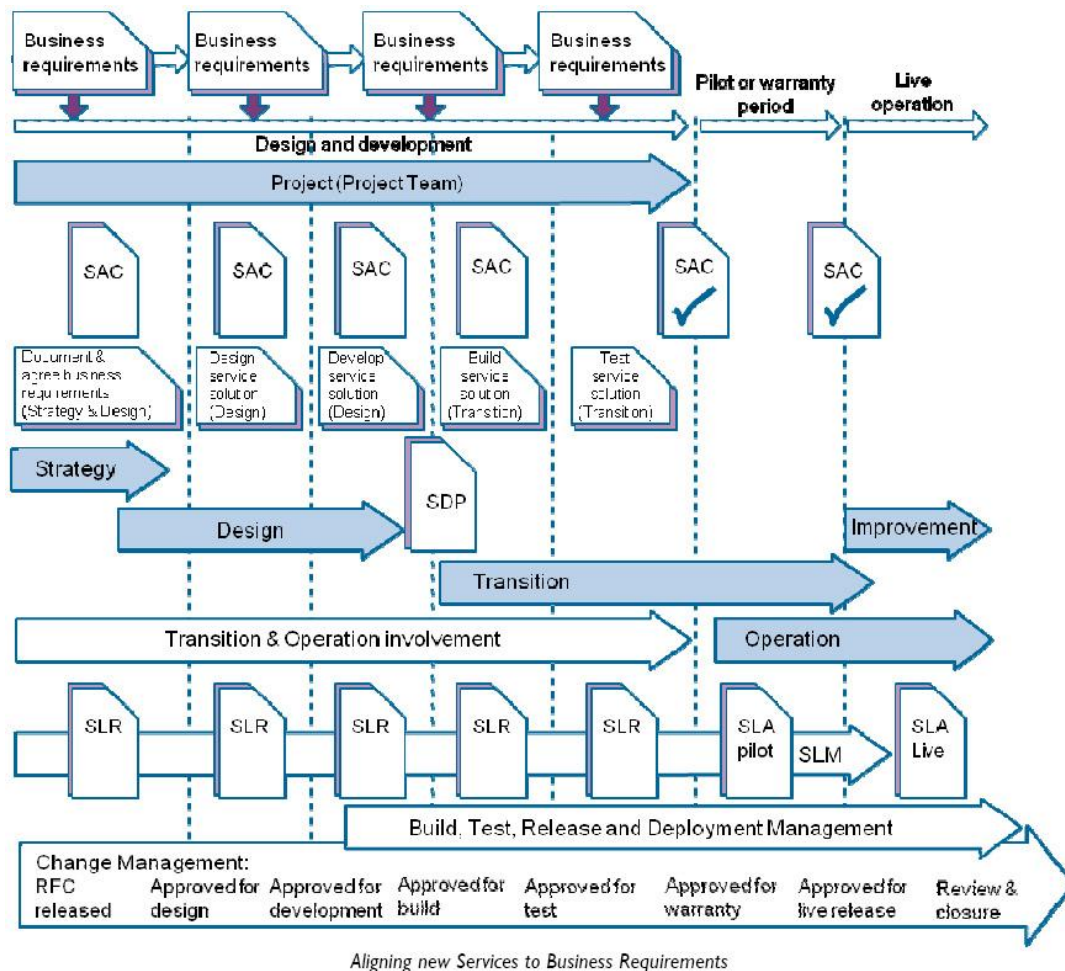
The diagram illustrates how Service Design can be applied to all areas of the Service Lifecycle.

Terminology

SD 3.6.1
- **Service Acceptance Criteria (SAC)** - determining whether service provision is functional and of acceptable quality
- **Service Design Package (SDP)** - defines all aspects of IT service throughout lifecycle
- **Service Level Requirement (SLR)** - customer-generated IT service requirements, generated from business objectives
- **Service Level Agreement (SLA)** - agreement between the service provider and customer governing service provision

Service Design Package (SDP)

SDP is a key document which enables all the various design activities to be recorded and progressed through the service's existence. It is initially created for each new service and then needs to be adjusted at times of major change, and finally at retirement of the service.

- Created for new services, major change, retirement
- Contents include:
  - Service Requirements
  - Service Design
  - Organizational readiness assessment
  - Service Lifecycle plan (Service Program, Service Transition Plan, Service Operational Acceptance Plan, Service Acceptance Criteria)

The format of the contents and usage can be found in Appendix A of the Service Design book.

Defining service solutions is governed by a number of **constraints**, as illustrated below:


Design constraints
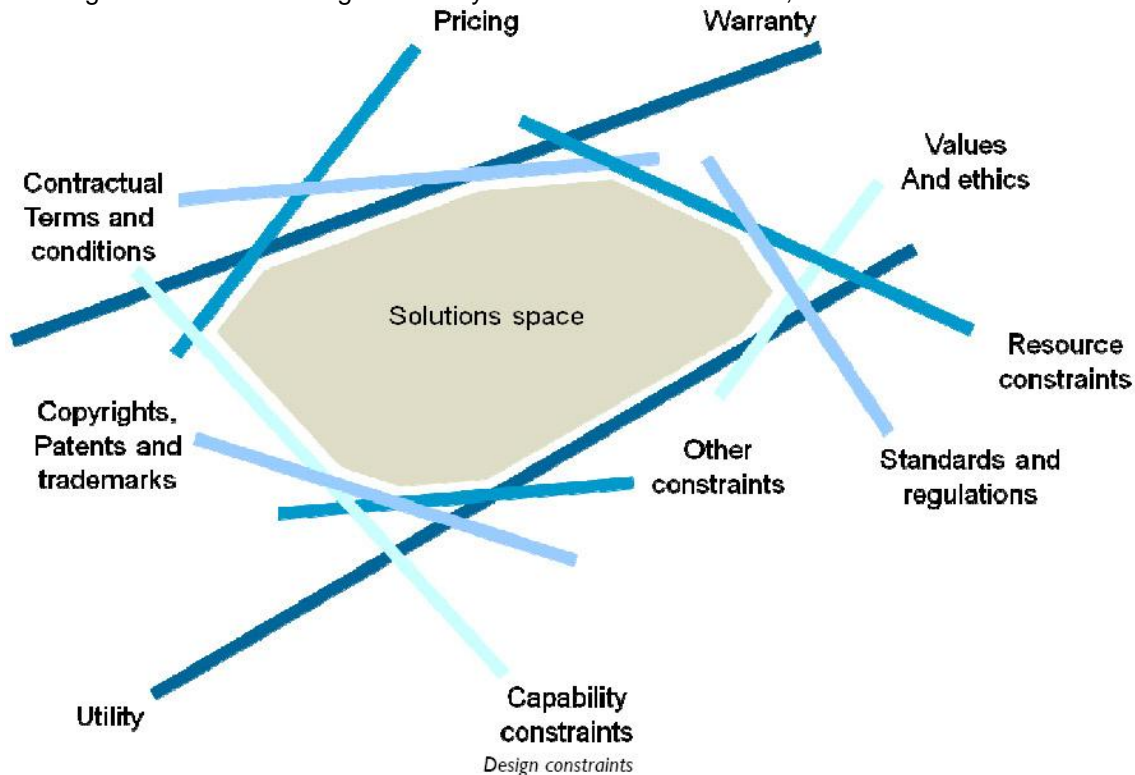
10. Designing Service Management Systems and Tools

Management of all aspects of IT services is made more effective with the use of **technology**. Automation of processes and the use of **support tools** must be considered when designing supporting systems.

SD 3.6.2

The **Service Portfolio** differs from the **Service Catalog** in that it contains *every* service and its status, including those currently required by the business, under development (as a **Service Pipeline**), delivered, and retired.
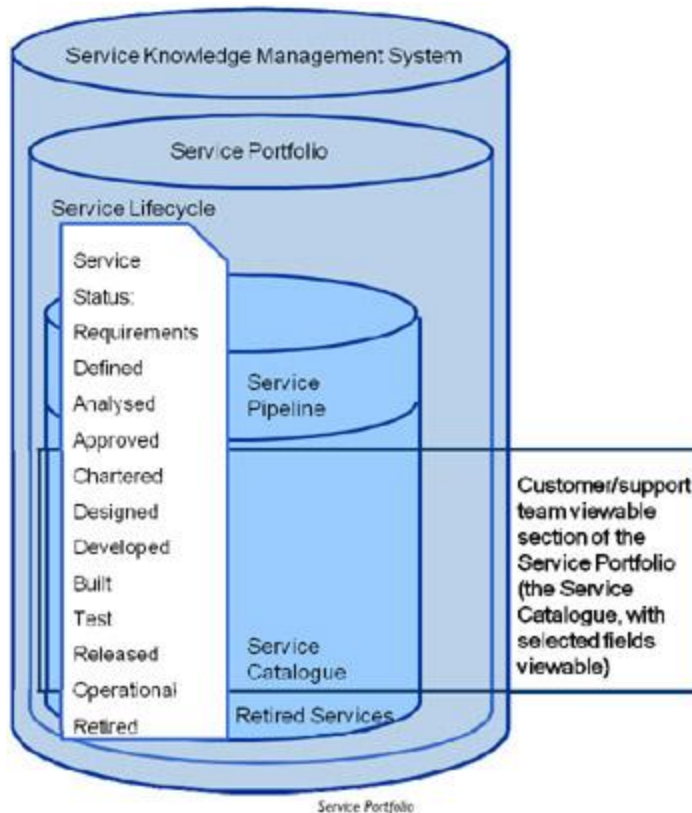
Service Portfolio

The diagram illustrates that the portfolio is a subset of the **Service Knowledge Management System**. The portfolio should include: Service Name, Description, Status, Classification/Criticality, Applications Used, Data, Business Processes, Business Owners, Business Users, IT Owners, Service Warranty, SLAs/SLR, Supporting Services, Supporting Resources, Dependent Services, OLAs Contracts, Costs, Charges, Revenue, and Metrics.

The Service Portfolio captures details for all services and controls access to information. The subsets of information used include:
- Requirements are recorded considered and prioritized, forming the Service Pipeline
- The Service Catalog formed from services with status between chartered and operational
- Aspects of a service might be at different statuses whilst undergoing changes

The Service Portfolio acts as a basis for a decision making framework by clarifying:
- Why should a customer buy the service?
- Why should it be bought from you?
- What are the relevant pricing and chargeback models?
- What are the strengths weaknesses priorities and risks?
- How should resources and capabilities be allocated?

11. Designing Management and Technology Architectures

Architectural design is the strategic basis when developing and deploying infrastructures. Design must consider the services being delivered by these architectures.
- **Architecture** is often described as a blueprint but is defined as: "The fundamental organization of a system, embodied in its components, their relationships to each other and to the environment, and the principles guiding its design and evolution"
- **System** - "a collection of components organized to accomplish a specific function or set of functions"

SD 3.6.3

There are two types of technology: one for the live services; the other to increase the effectiveness of the management of the services.

Technology architecture would include: applications and system software, information and data, infrastructure design including all hardware and documentation, and environmental systems.

Management architecture should include some integrated toolset, either a single set of proprietary tools or a combination of "best of breed", which automate procedures and management activities.
- Appropriate selection of tools
- Avoid duplication
- Cost effective solutions
- Provision of benefits to the business as well

Architectural Relationships
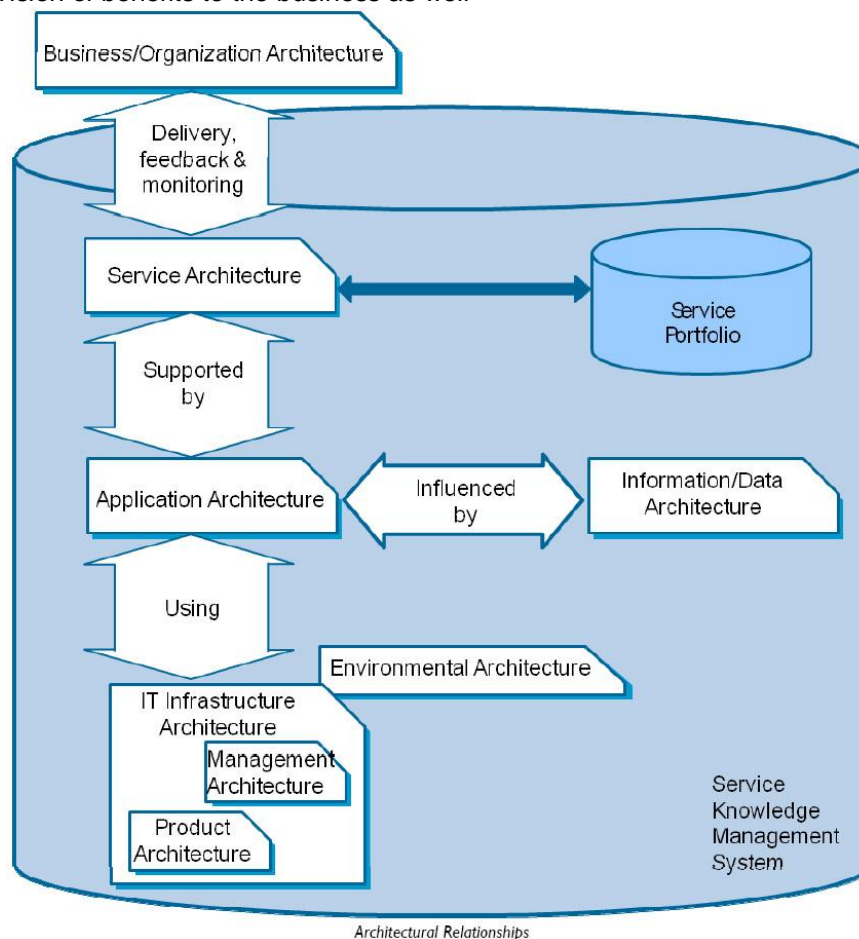
12. Designing Processes

SD 3.6.4

A **process** is defined as a set of co-ordinated activities combining resources and capabilities to produce an outcome that creates value for the customer.

Processes ensure ownership and responsibility, consistency, and conformance to quality norms. Processes should be repeatable.

13. Designing Process Measurement Systems, Methods, and Metrics

SD 3.6.5

Metrics enable **Process Control**. Metrics means something measured and reported on to manage a process. They show the value that is brought to the business from the definition and use of good metrics ("If you can't measure it, you can't manage it").

Process control
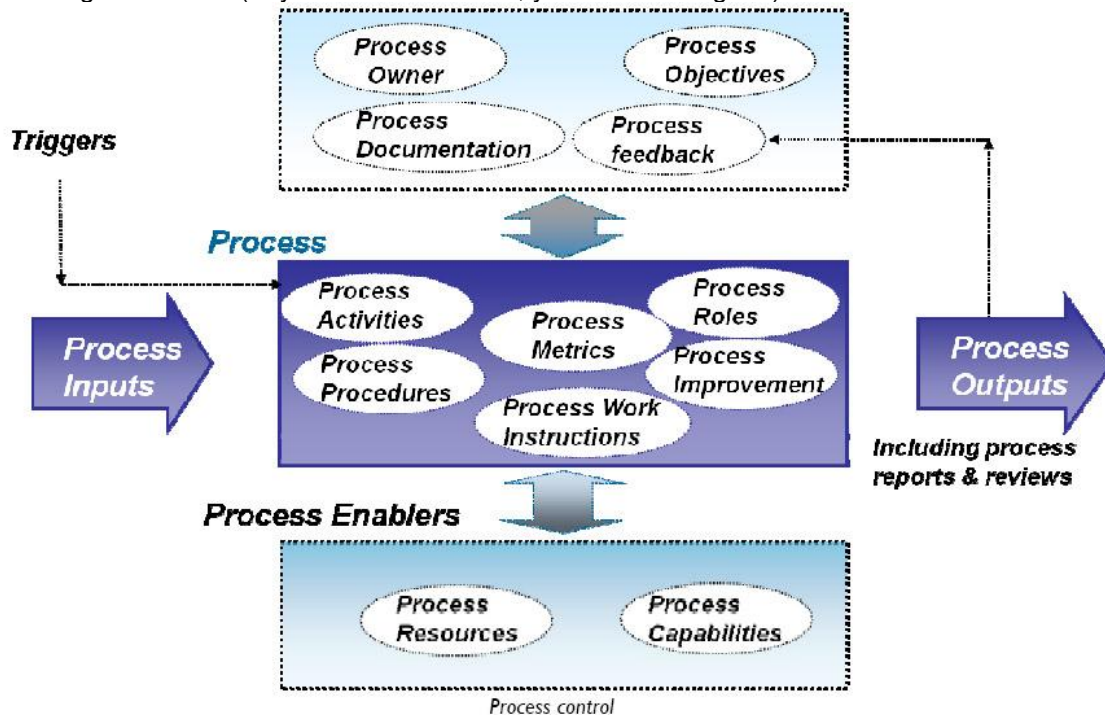
Measurement selection should:
- Encourage meeting business objectives
- Assist in behavioral change

Measurements can:
- Change the way people work
- Have negative and positive effects - team working objectives and performance, performance related pay!

The value of measurement:
- Knowing what is happening
- Identification of excellence

- Need for improvement

Design criteria:
- Fit for purpose
- Not over-or under-engineered
- Right first time
- Require minimal re-engineering
- Effective and efficient solutions
- Align to current level of capability
  - Immature simpler metrics
  - Mature more sophisticated
- Key Performance Indicators (KPIs)

KPIs indicate achievement of objectives for:
- Performance
- Effectiveness
- Compliance

14. Processes Covered In Service Design

The next few sections discuss the **processes** covered in SD:
- Service Catalog Management
- Service Level Management
- Capacity Management
- Availability Management
- IT Service Continuity Management
- Information Security Management
- Supplier Management

15. Service Catalog Management Process

SD 4.1.4

The **Service Catalog** provides key input into design activities as a source of consistent information about all the agreed services. The catalog will include services that are also being developed or enhanced for future transition into live status.

Objectives

- To ensure that a Service Catalog is produced and maintained
- To manage the information contained within the Service Catalog
- To ensure that the information is accurate and current

Basic Concepts
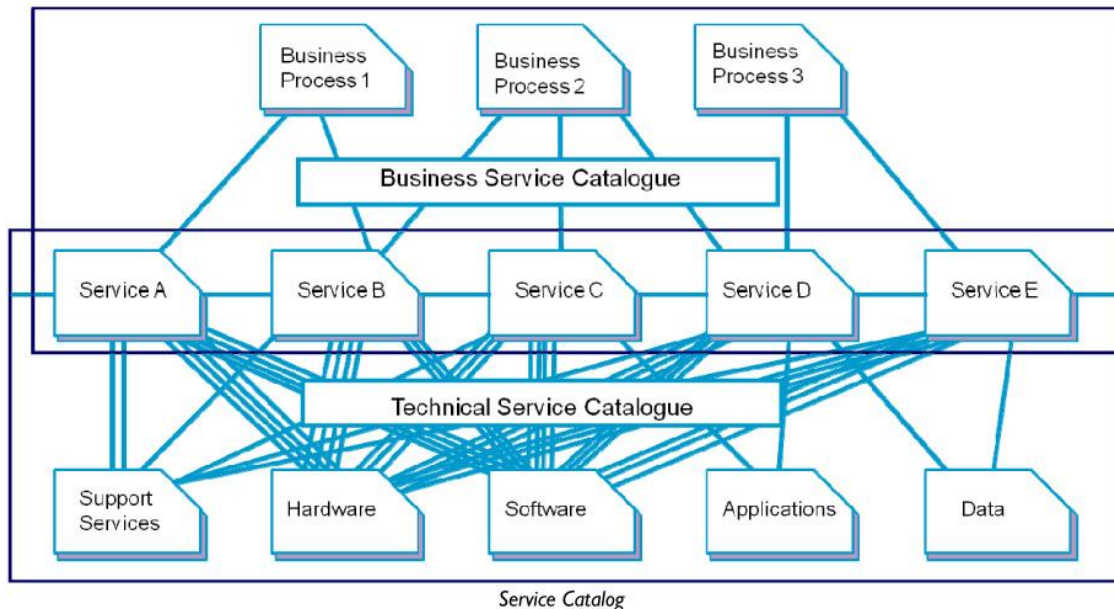
Service Catalog

The service catalog has two aspects.
- **Business Service Catalog (BSC)** - contains all details of IT services delivered to customers with relationships to business units
- **Technical Service Catalog (TSC)** - contains all details of services delivered to customers with their relationships to supporting services, shared services and components

The business does not require seeing the technical details that support the service and the technicians do not necessarily require some of the business information.

This also enables an explanation that the word "Service" often means different things to different people. The business would see it as a collection of IT systems that deliver a capability for the end to support of a business process or function. However some services span numerous different business areas such as network services where their role is to provide specialist support of the end to end services and so are often referred to as **Support Services**.

Activities

- Agree and document service definitions with all parties
- Interface with service portfolio management to agree contents
- Produce and maintain a service catalog in conjunction with the service portfolio
- Interface with the business and ITSCM on the dependencies of business units, processes, and so on, with the supporting IT services within the BSC
- Interface with support teams, suppliers, and Configuration Management on interfaces and dependencies with supporting services, components in the TSC

Service Catalog Manager's Responsibilities

SD 6.4.5

This section shows the main role and responsibility of the Service Catalog Manager. This role may be allocated to the Service Owner or even Service Level Manager. The way this is implemented will depend on the requirements of the organization.

The responsibilities of the Service Catalog Manager are:
- Produce and maintain accuracy of the Service Catalog
- Ensure information is reflected in the Portfolio
- Ensure adequate protection of information
- Access controls and regular backup

16. Service Level Management Process

SD 4.2.1

"To ensure that an agreed level of service is provided for all current IT services, and that future services are delivered to agreed achievable targets."

Objectives

The objectives are at two levels. One is to bring as many services as possible into the control of SLM; the other is to bring value to the services by ensuring that they are adequately defined, monitored and reviewed regularly, and that the SLA (Service Level Agreement) itself remains applicable.
- Define, document, agree, monitor, measure, report and review the level of IT service provision for all services
- Promote and build good relationships with the business and customers
- Monitor and improve levels of customer satisfaction
- Provide specific and measurable targets
- Level of service defined clearly and unambiguously
- Proactively improve service levels where cost justifiable

Scope

SD 4.2.2

SLM is a regular point of contact between the business and service provider.
- Key interface between the business and IT service provider
- Negotiates and agrees SLAs for current services in conjunction with OLAs and contracts
- Captures SLRs for future business needs and changes
- Investigation and eradication of poor service
- Creation and management of Service Improvement Plans (SIP)

The first two bullets act as consolidation of the remit of SLM. The latter shows there is a balancing act and that it is essential that there is continuing dialog with the business for longer term service changes and the tactical changes that might be required for short term temporary initiatives.
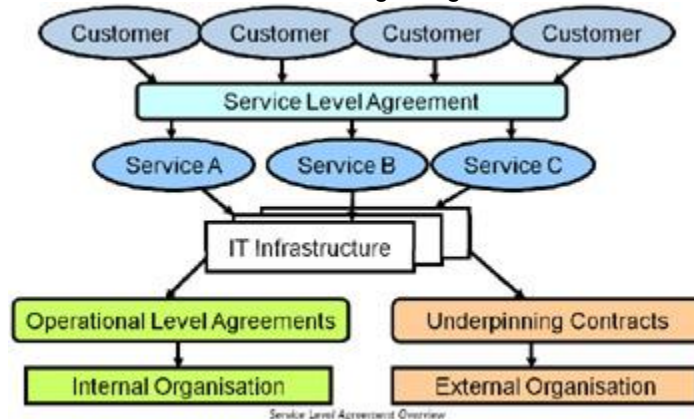
Basic Concepts

- Service Level Agreements (SLA)
- Operational Level Agreements (OLA)
- Underpinning Contracts (UC)
- Service provider
- Supplier

Service Level Agreements

A **Service Level Agreement (SLA)** is "A written agreement between an IT Service Provider and IT customers".

The SLA should be signed by both parties and written in a way that it is clearly understood by all who need to reference it. All targets agreed should be measurable.

Service Level Agreement Overview

The SLA overview diagram shows all the key components of Service Level Management. It shows the customer's relationship with IT being governed by the Service Level Agreement. It shows the IT services being supported by IT infrastructure components; and it shows the infrastructure being supported by internal organizations and external organizations, governed by **Operational Level Agreements (OLA)** and **Underpinning Contracts (UC)**.

Operational Level Agreement
- An **Operational Level Agreement (OLA)** is an underpinning agreement between an IT Service Provider and another part of the same organization that assists with the provision of services
- 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**
- The Underpinning Contract defines targets and responsibilities that are required to meet agreed Service Level Targets in a Service Level Agreement

Providers and Suppliers
- **Service Provider** - an organization supplying services to one or more internal or external customers
- **Supplier -** a third party responsible for supplying goods or services that are required to deliver IT services

Simple distinction:
- Provider - internal to the organization
- Supplier - external

Activities
- Determining SLA structure
- Produce SLRs

- Report on SLAs
- Conduct customer satisfaction surveys
- Day to day revision of SLAs, OLAs, contracts
- Log and manage complaints and compliments
- Service reporting
- Service review
- Initiate improvements (SIP)
- Annual SLA review (revisit OLAs and contracts)
- Maintain business and customer relationships

Service Level Management activities
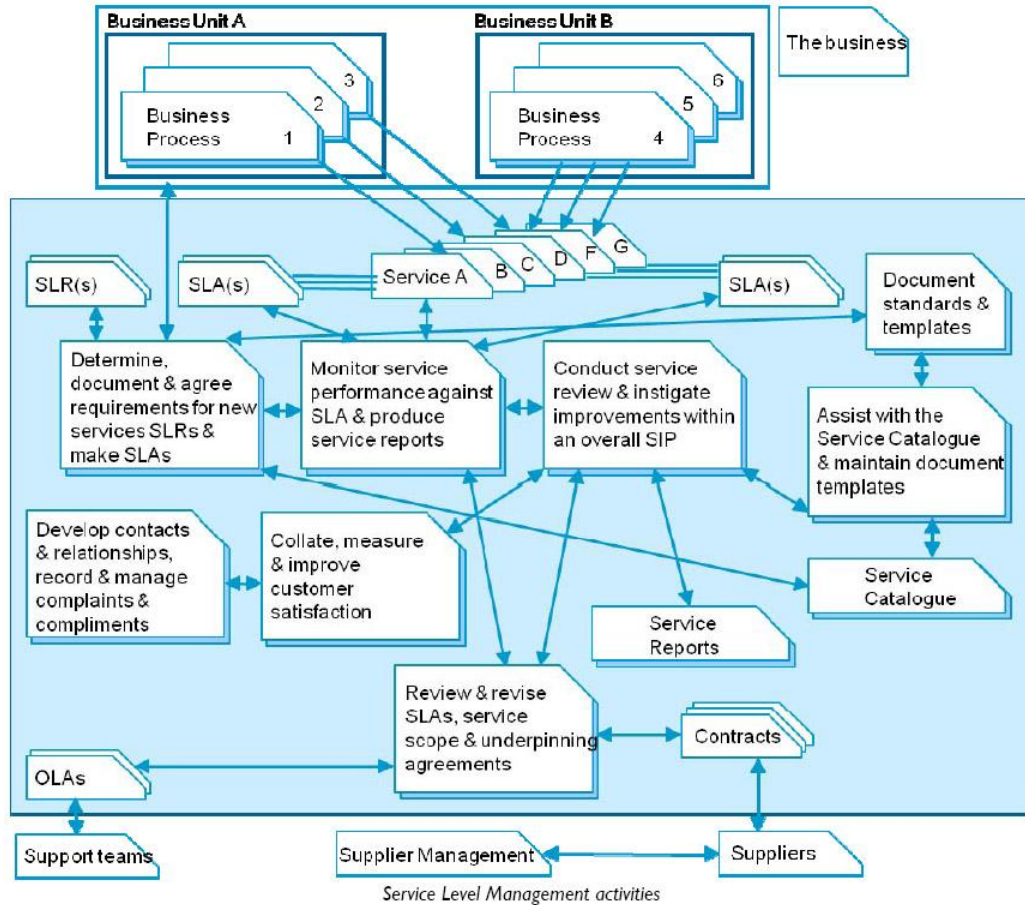
Key Metrics

SD 4.2.7.1

This section discusses the two areas where the KPIs can be applied. KPIs can be both used for process effectiveness and service performance.
- Success of SLM
  - How many services have agreements
  - Time to create agreements
  - Percentage of review meetings held on scheduled date
- Success of services delivered
  - Percentage reduction is SLA breaches
  - Caused by OLA issues
  - Caused by contract issues

Service Level Manager's Responsibilities

SD 6.4.6

The **Service Level Manager** is responsible for all the Service Level processes. The key attributes are the understanding of the business areas and the ability to relate business needs to IT in a way that they can be technically assessed.
- Creates the process and procedures to support the key activities
- Produces standards for documentation
- Conducts agreement negotiation and ensures monitoring and reporting in place
- Responsible for resolving complaints and monitoring customer satisfaction
- Assists in production of the Service portfolio, Service catalog and Applications portfolio
- Instigates and drives Service Improvement Programs

The Service Level Manager acts as the communication link between parties to agreements and instigator of the capture of meaningful metrics upon which SIP and CSI can operate to increase the efficiency and effectiveness of the service delivery.

Key Challenges

SD 4.2.9

This section highlights what needs to be in place or should be considered when setting up Service Level Management. This can be addressed by setting out **Critical Success Factors (CSFs)**.
- Identifying the correct customer
- No prior experience
  - Draft SLA
- No baseline information
- Gaining Service Desk "buy in" to promote use
- Advertising SLA
- Ensuring agreement is signed

17. Capacity Management Process

Capacity Management
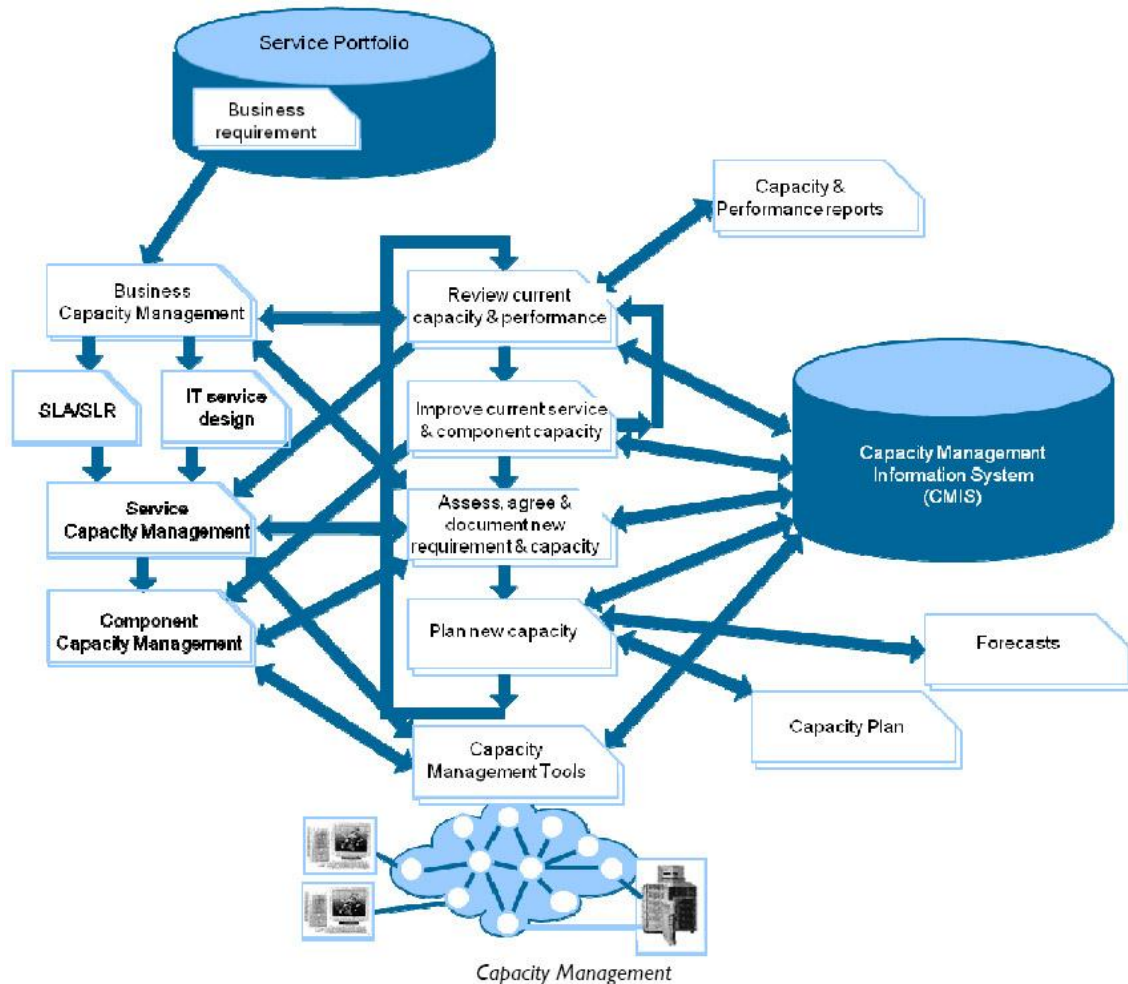
Objectives

- Creation of the Capacity Plan
- Provide advice and guidance to IT and business
  - Performance and capacity issues
- Ensure performance meets or exceeds targets
- Assist Incident and Problem Management on capacity related issues
- Involvement with change
  - Assess impact of solutions on capacity and performance
- Proactively looking for cost effective solutions to enhance performance

Basic Concepts

- Business Capacity Management
  - Aligned to plans and strategy
  - Modeling
- Service Capacity Management
  - Ensures capacity underpins required service
  - Demand Management and tuning
- Component Capacity Management
  - Technical understanding of components
  - Future technologies, data analysis and tuning

Capacity Manager's Responsibilities

- Application sizing
- Growth forecasting
- Production of Capacity Plan
- Iterative activities
- Enable sufficient capacity at all times
- Understanding current utilization of services and existing limits
- Assessment of new technologies
- Production of management reports
- Selection of capacity tools
- Raising capacity related incidents and problems
- Focal point for all capacity and performance issues

18. Availability Management Process

Availability is the ability of a service, component or Configuration Item (CI) to perform its agreed function when required.
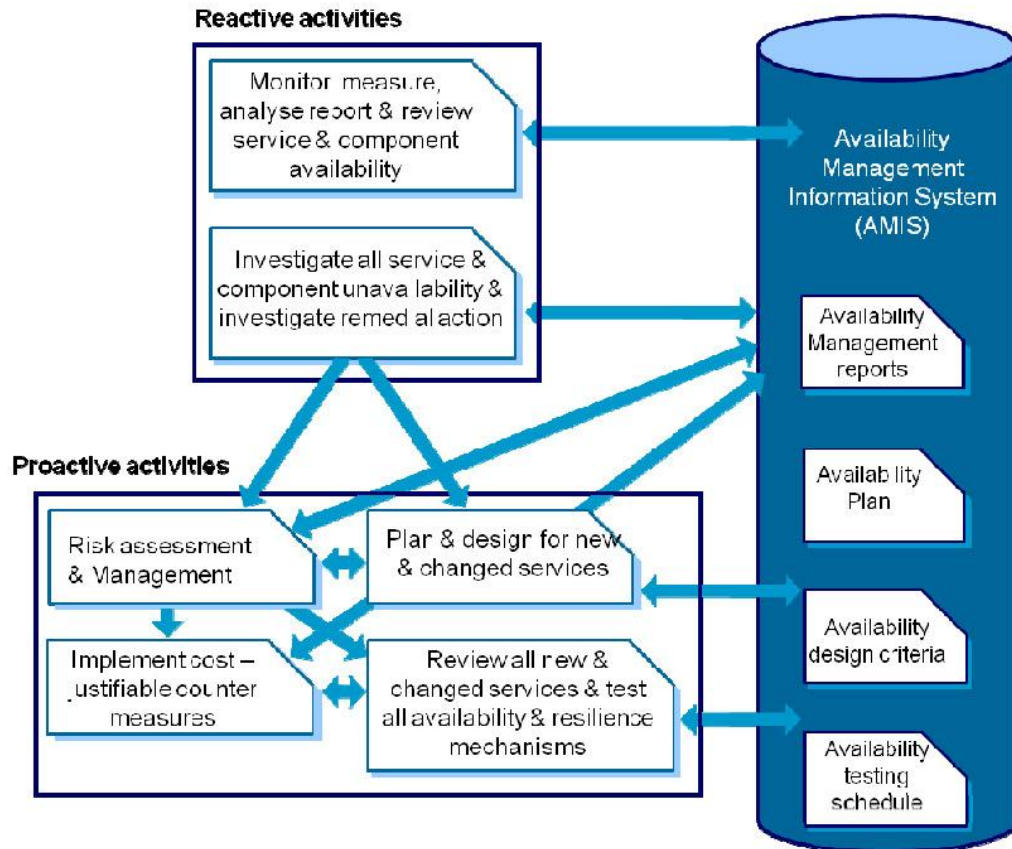
Objectives

- Create and maintain the Availability Plan
- Provide advice and guidance
- Assist with availability related incidents and problems
- Assess impact of all changes on availability
- Ensure proactive measures to improve availability are implemented where cost effective
- Measuring and monitoring

SD 4.4.4

All are concerned with the potential impact of availability and unavailability on agreed service levels and that planned services or enhancements are designed with availability in mind.

Basic Concepts

- Service Availability
  - Considers all aspects of service availability and unavailability
  - The impact of component availability on service availability
- Component Availability
  - Considers all aspects of component availability

Reactive activities

Monitor, measure, analyse report & review service & component availability

Investigate all service & component unavailability & investigate remedial action

Proactive activities

Risk assessment & Management

Plan & design for new & changed services

Implement cost-justifiable counter measures

Review all new & changed services & test all availability & resilience mechanisms

Availability Management Information System (AMIS)

Availability Management reports

Availability Plan

Availability design criteria

Availability testing schedule

Proactive and reactive activities

The graphic above illustrates the two aspects of availability management (**Reactive** and **Proactive**) and how these interact to provide higher levels of availability.

Reactive

- Involves operational roles
- Monitoring
- Measuring
- Reporting
- Incidents and problems

Important metrics for availability here:
- Availability - often reported as a percentage: $((AST-DT)/AST)*100\%$ where AST is Agreed Service Time (uptime), DT is DownTime as a result of service interruption within agreed service time
- Reliability - Mean Time Between Failure (MTBF) or Mean Time Between Service Incidents (MTBSI)/Uptime - frequency between downtime
- Maintainability - Mean Time To Restore Service (MTRS)/Downtime - duration of downtime

Proactive

- Design and planning roles
- Design for availability
- Planning availability
- Improving availability
- Risk reduction

Availability Manager's Responsibilities

SD 6.4.7

This looks at the responsibilities of availability management. This responsibility has many points of contact with other processes within ITIL.

- Create and maintain Availability Plan
- Monitoring and reporting
- Proactive improvements
- Tool acquisition and support
- Risk Assessments
- Impact analysis
- Assist Incident and Problem Management
- Test planning and execution

19. IT Service Continuity Management Process

SD 4.5.1

Objectives

- Maintain IT service continuity and recovery plans
- Undertake Business Impact Analysis (BIA)
- Conduct risk assessments
- Provide advice and guidance on recovery issues
- Support the business with appropriate recovery mechanisms

These objectives identify the key areas of the process for ITSCM. They show that ITSCM is not conducted in isolation. It must be seen as part of overall **Business Continuity** and closely aligned to **Security Management**. There are links with external suppliers of recovery sites and internally there is a lot of synergy with **Availability Management**.
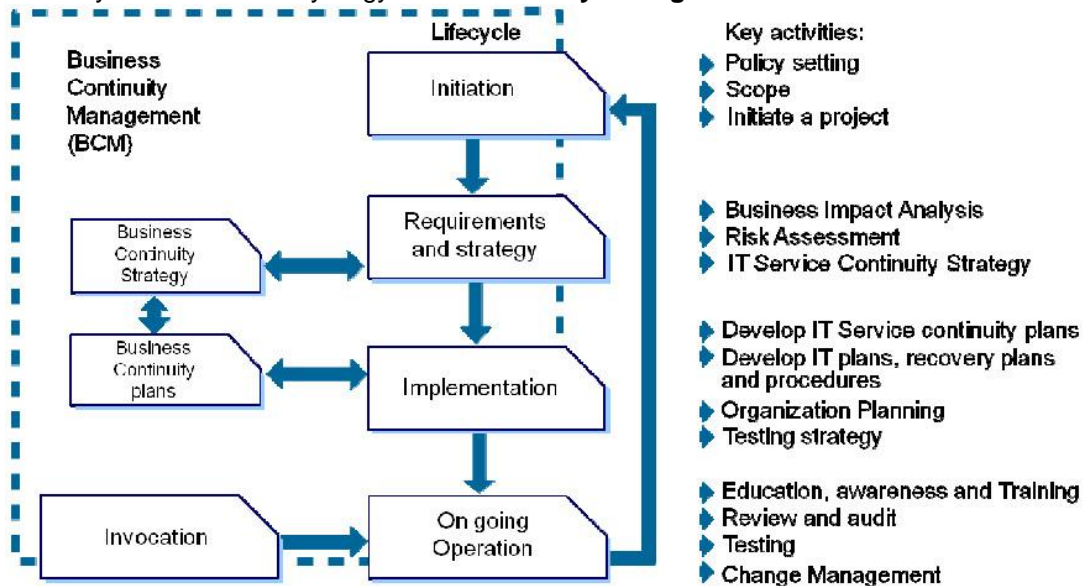
Business Continuity Management key activities

Some Activities

- Assess impact of changes on IT service continuity.
- Negotiate and agree recovery contracts where necessary
- Work closely with availability to ensure correct levels of service maintained

ITSCM Manager's Responsibilities

SD 6.4.8
- Perform Business Impact Assessment (BIA is typically performed by business with IT involvement)
- Align with Business Continuity Management
- Conduct risk assessment
- Communication and awareness
- Managing and maintaining strategy and plans
- Invocation activities
- Reviews and plan testing
- Involvement in contract negotiation for recovery options

20. Information Security Management Process

SD 4.6.1

Information Security Management looks at the areas that need to be considered and the actions to be taken.

Objectives

- Alignment with business security
- Protection of information
  - Including business transactions
  - Exchanges of information between organizations
  - Ensuring confidentiality integrity and availability

Basic Concepts

SD 4.6.4.1

This section describes the **Security Framework**. As with continuity, IT Security should be aligned with and part of business security.

SD 4.6.4.2
- Information security policy (ITP)
- Information Security Management System (ISMS)
- Strategy
- Organizational structure
- Security controls
- Management of risks
- Process management
- Communications
- Training and awareness

IT Security Manager's Responsibilities

SD 6.4.10

This section provides extra detail on the responsibilities of the **Security Manager**. This is a critical role in organizations today as the lack of security can result in fines and loss of credibility which would impact the whole organization.

Close relationship with ITSCM both consider BIA and Risk Analysis.
- Produce and maintain the Information Security Policy
- Communication and enforcement of policy
- Define the level of control and protection for CIs
- Conduct BIA and Risk Analysis
- Develop and document controls and procedures
- Monitor security issues
- Manage security testing
- Execute remedial action for breaches

21. Supplier Management Process

SD 4.7.1

The process should be set up to facilitate the monitoring and control of the suppliers as well as formal processes for engaging new supplier organizations. There should be guidelines set up and adhered to for contractor negotiations so that the process can be as transparent as possible.

Objectives

- Manage supplier relationships and performance to ensure value for money
- Negotiate and monitor contracts
- Create Supplier Policy
- Create and maintain Supplier and Contract Database (SCD)

Supplier Management
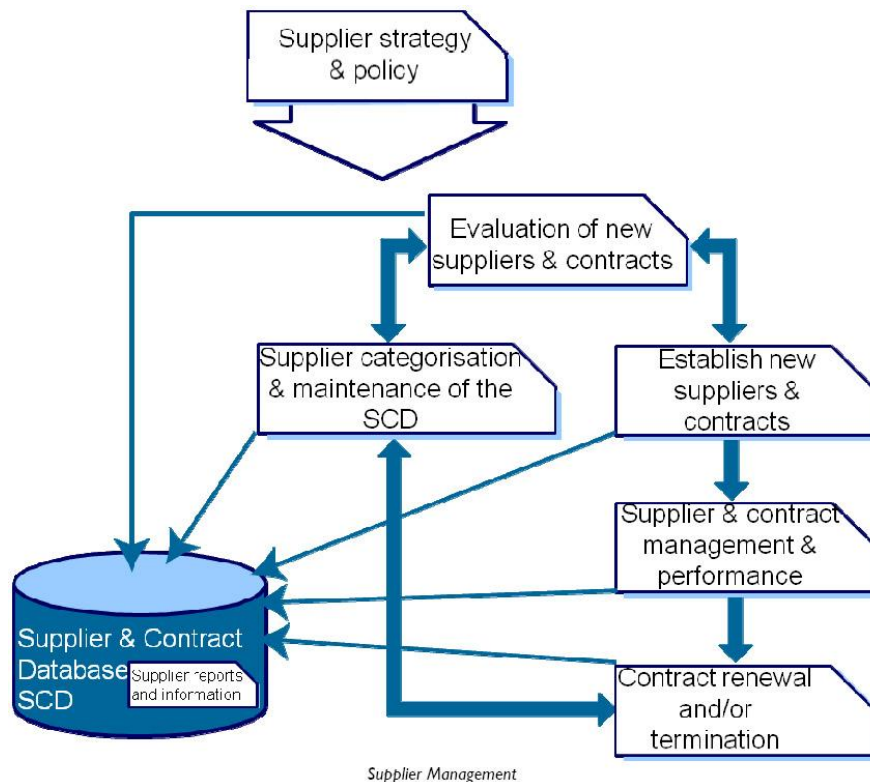
All Supplier Management process activity should be driven by a supplier strategy and policy from Service Strategy. In order to achieve consistency and effectiveness in the implementation of the policy a **Supplier and Contracts Database (SCD)** should be established, together with clearly defined roles and responsibilities.

Supplier Manager's Responsibilities

SD 6.4.11

Covers the key areas of the roles of Supplier Management and are the higher level activities.
- Maintain supplier and contract database
- Assist in creation of SLAs and contract negotiation aligning with business need
- Perform review and risk assessment
- Document interfaces between suppliers
- Conduct regular review of suppliers

Exercises—Service Design

Answer the following questions and then compare your answers to the point locations shown beside the questions.
   1. What are the Four Ps - See point "6"

2. What are the 5 key aspects of Service Design? See point "8"
3. What is the definition of a system? - See Point "11"
4. What are the 3 points regarding the value of measurement? - See point "13"
5. What KPI indicators show the achievement of objectives? - See point "13"
6. Explain difference between a Service Pipeline/ Service Catalog - See point "10"
7. What processes are covered in Service Design? - See point "14"
8. What is the objective of a Service Catalog? - See point "15"
9. Define "Providers" and "Suppliers" - See point "16"
10. What are the basic concepts of Capacity Management? - See point "17"
11. What are the basic concepts of Availability Management? - See point "18"
12. What is the objective of IT Service Continuity Management? - See point "19"
13. What are the objectives of Information Security Management? - See point "20"
14. What are the supplier manager responsibilities? - See point "21"

Service Transition

1. Session Objectives

This subject provides guidance on the development and improvement of capabilities for transitioning new and changed services into operations.

On completion of this session you will be able to:
- Define and explain some of the key terminology and concepts of Service Transition
- Explain the high level objectives, scope, basic concepts, process activities, key metrics, roles, and challenges for Change Management
- State the objectives, basic concepts, and roles for Service Asset and Configuration Management (SACM) and Release and Deployment Management

2. Goals

ST 2.4.1

The objectives of **Service Transition** are:
- Provide clear and comprehensive plans that enable the customer and business change projects to align their activities with the Service Transition plans
- Plan and manage the resources to establish successfully a new or changed service into production within the predicted cost, quality, and time estimates
- Ensure there is minimal unpredicted impact on the production services, operations, and support organization

- Increase customer, user and service management staff satisfaction with the Service Transition practices including deployment of the new or changed service, communications, release documentation, training, and knowledge transfer
- Increase proper use of the services and underlying applications and technology solutions
- Set customer expectations on how the performance and use of the new or changed service can be used to enable business change
- Enable the business change project or customer to integrate a release into their business processes and services
- Reduce variations in the predicted and actual performance of the transitioned services
- Reduce the known errors and minimize the risks from transitioning the new or changed services into production
- Ensure that the service can be used in accordance with the requirements and constraints specified within the service requirements

3. Scope

ST 2.4.2

"Management and co-ordination of the Processes, Systems and Functions to package, build, test and deploy a Release into production, and establish the Service specified in the customer and stakeholder requirements."

Scope of Service Transition
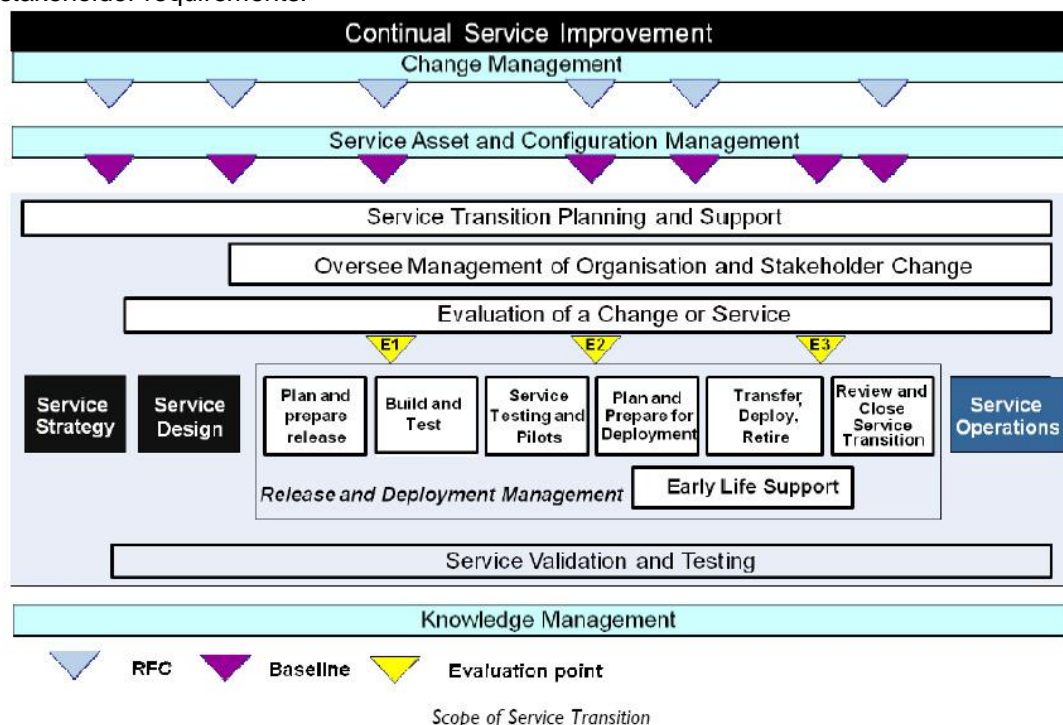
The processes within scope are essentially Asset and Configuration Management, and Change and Release and Deployment management.

Some activities are excluded from the scope of Service Transition. These include minor modifications to production services and environment - swapping a failed device (PC/printer); adding a new user; installing standard software on a PC. Also there are minor ongoing service improvements that do not impact overall capabilities (request fulfillment).

4. Value to the Business

ST 2.4.3

Effective Service Transition adds value to the business by improving:
- Competitive edge - ability to adapt quickly to new requirements and market developments
- Management of mergers, de-mergers, acquisitions, transfer of services
- Success rate of changes and releases for the business
- Predictions of service levels and warranties for new / changed services
- Confidence in the degree of compliance with business and governance requirements during change
- Variation of actual against estimated and approved resource plans and budgets
- Productivity of business and customer staff because of better planning and use of new and changed services
- Timely cancellation or changes to maintenance contracts for hardware and software when components are disposed of or de-commissioned
- Understanding of the level of risk during and after change (for example, service outage, disruption, and re-work)

It enables the service provider to:
- Handle high volumes of change and releases across its customer base
- Align the new or changed services with the customer's business requirements and business operations
- Ensure that customers and users can use the new or changed service in a way that maximizes value to the business operations

5. Processes

Supporting the Service Lifecycle:
- Change Management
- Service Asset and Configuration Management
- Knowledge Management

Within Service Transition:
- Transition planning and support
- Release and Deployment Management
- Service Testing and Verification
- Evaluation
- Knowledge Management

6. Service Transition Key Concepts
- Service Knowledge Management System (SKMS)

A set of tools and databases that are used to manage knowledge and information. The SKMS includes the **Configuration Management System**, as well as other tools and databases. The SKMS stores, manages, updates, and presents all information that an IT Service Provider needs to manage the full Lifecycle of IT Services.
- Service Asset and Configuration Management (SACM)
  - Configuration Management System / Configuration Management Database (CMDB)
  - Definitive Media Library
- Change Management
  - Service change
  - Seven R's of change management
  - Change types
- Release and deployment
  - Release Unit
  - V model for test and configuration levels

7. Service Asset and Configuration Management

The **goal** of SACM is to provide a logical model of the IT infrastructure correlating IT services and IT components (physical, logical, etc) needed to deliver these services.

"To define and control the components of services and infrastructure, and maintain accurate configuration information on historical, planned and current state of the services and infrastructure."

This enables:
- Compliance with corporate governance
- Control of asset base
- Cost optimization
- Effective change and release management
- Faster incident and problem resolution

Objectives

ST 4.3.1

This section describes the objectives of **Service Asset (SA)** and **Configuration Management (CM)**.
- Protect the integrity of service assets and configuration items (CI)
- Place IT assets and designated CIs under configuration management
- Ensure the integrity of assets and configurations by maintaining a complete Configuration Management System (CMS)
- Support processes through accurate information

Key Concepts

- Configuration items (CIs)
- Categories
- Levels
- Naming
- Labels
- Attributes
- Configuration Management System (CMS)

- Baselines
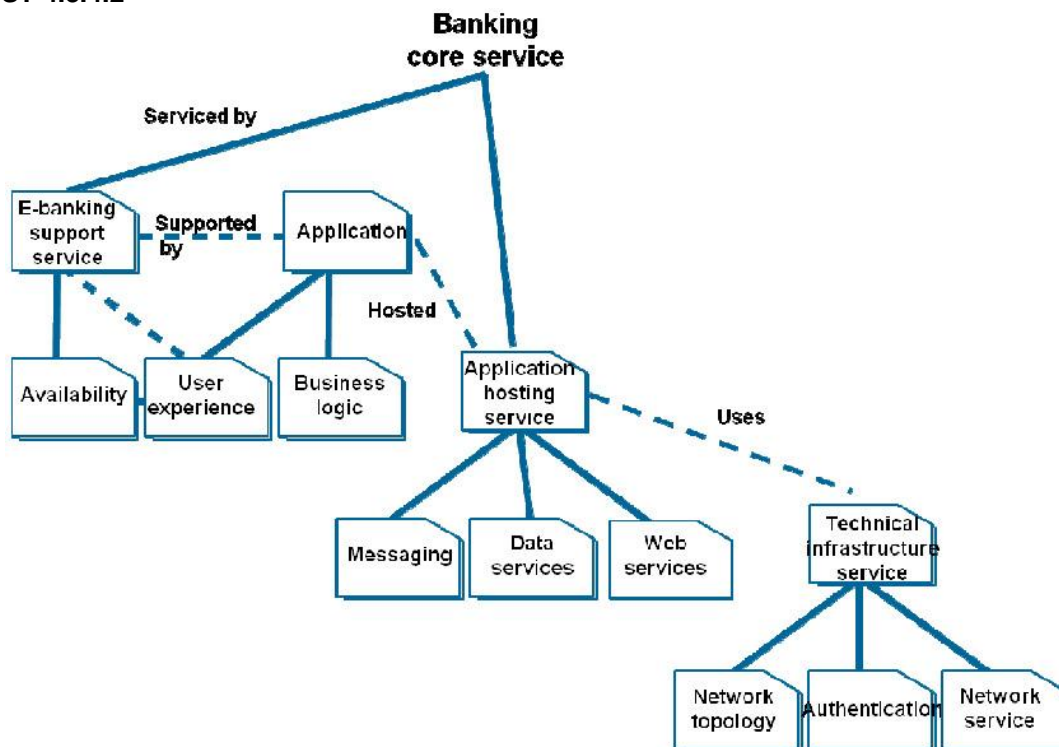
Configuration Items

ST 4.3.4.2

"A Configuration Item (CI) is an asset, service component or other item which is, or will be, under the control of configuration management."

Configuration Items can be categorized as follows:
- Service lifecycle CIs (service management plans, release and change plans, test plans, business case, SDP)
- Service CIs
    - Capability assets (people, knowledge)
    - Resource assets (systems, data models, packages)
- Organization CIs (strategy, internal policies)
- Internal CIs (tangible and intangible assets such as software for individual projects)
- External CIs (external customer agreements, releases from suppliers or sub-contractors)

Logic Model

ST 4.3.4.2

Example of a logical Configuration Model

Understanding the relationships between components will enable other processes to access valuable information, which will enable:
- Assessing the impact of proposed changes
- Assessing the impact and cause of incidents and problems
- Planning and designing new or changed services
- Planning technology refreshes and software upgrades

- Planning R&D packages and migrating services
- Optimizing utilization of assets

The **level** of CI definition can be difficult to establish; it is a question of balance. Trying to define at too great a depth will involve considerable cost in the discovery and initial data definition phase, as well as leading to greater overheads in maintaining the data. Conversely, too high a level leads to information that is insufficient to manage configurations effectively.

We all know that a PC consists of a multitude of individual components, but does it really provide any real value to sub-divide it into all the separate items? We probably treat some items, such as keyboards and mice, as consumables. In truth, many of the other differences between one PC and another are more characteristics (or Attributes) of the item. In many cases, if a PC failed we could swap the whole unit out - even if we subsequently recovered, repaired, or replaced individual components for re-use.

Activity Model

ST 4.3.5.1

The activities for SACM are shown in the following diagram:

Activity Model
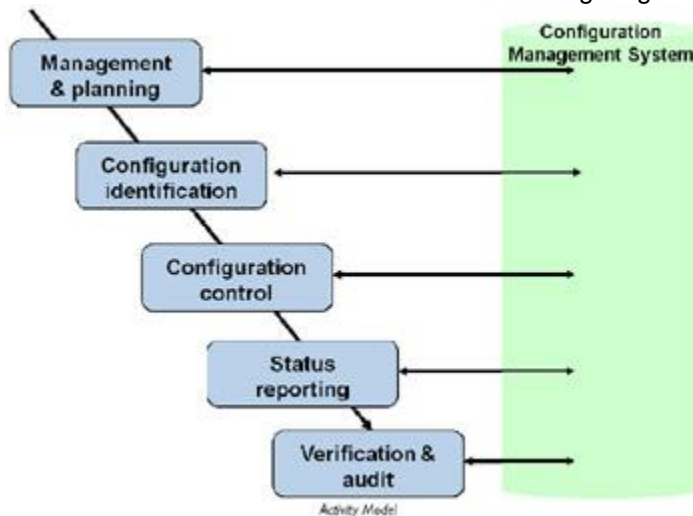
Inputs to the **Management and Planning** phase include:
- Planning
- Management resources
- Time management support
- Working relationships
- Resources
- Facilities
- CMS and tools
- Training and Guidance
- Policy
- Standards
- Strategy
- Service Portfolio
- Customer Portfolio
- Contract Portfolio
- Contract requirements

Configuration identification covers all aspects of naming and labeling assets, defining classes and types of assets and how they are to be grouped and classified, together within ownership of the CI at different stages of the Lifecycle.

Configuration control ensures that there are adequate control mechanisms so that information is kept accurate and up-to-date. It is particularly important to ensure that the logical and physical information matches.

Each CI can posses a number of different states through which in can pass. The **status** links to the use that can be made of the item at that point in time.

Verification and audit ensures that regular reviews are performed to ensure conformity between the documented baselines and the actual environment.

Roles

ST 6.3.2.3
- **Service Asset Manager** - to design and maintain the Asset Management Systems and to implement Service Asset Management Policy and Standards
- **Service Knowledge Manager** - to design and maintain the Knowledge Management Strategy, Process, and Procedures
- **Configuration Manager** - to design and maintain the Configuration Management System, to agree the scope of the process, to identify naming conventions, and so on
- **Configuration Analyst** - to create processes and procedures and provide training
- **Configuration Librarian** - to control the receipt, identification, and storage of CI's and master copies of software
- **CMS Tools Administrator** - to amend the database to suit Business Requirements and undertake regular housekeeping

8. Knowledge Management

"The purpose of Knowledge Management is to ensure that the right information is delivered to the appropriate place or competent person at the right time to enable informed decision."

Service Knowledge Management System
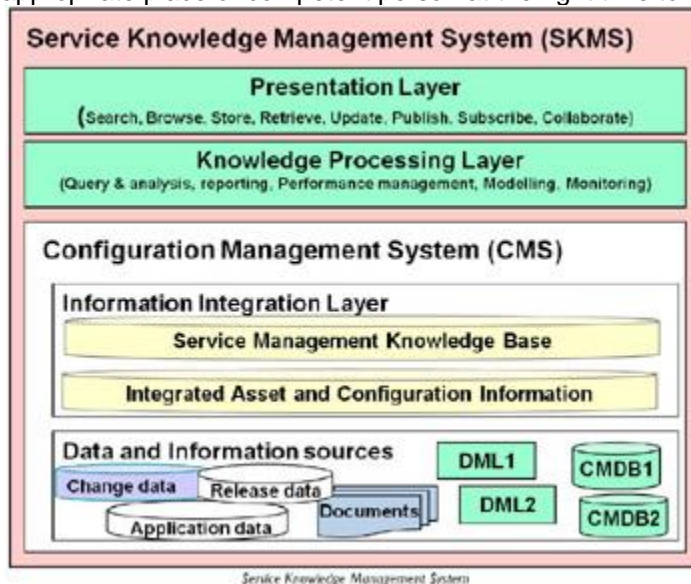
Knowledge management is typically displayed within the **Data-Information-Knowledge - Wisdom (DIKW)** structure. The use of these terms is set out below.

DIKW
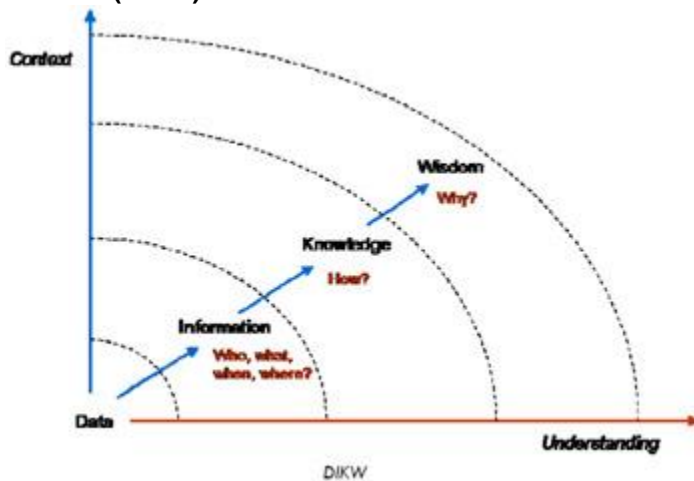
Data is a set of discrete facts about events. Most organizations capture significant amounts of data in highly structured databases such as service management and configuration management tools/systems and databases.

The key knowledge management activities around data are the ability to:
- Capture accurate data
- Analyze, synthesize, and then transform the data into information
- Identify relevant data and concentrate resources on its capture

Information comes from providing **context** to data. Information is typically stored in semi-structured content such as documents, e-mail, and multimedia.

The key knowledge management activity around information is managing the content in a way that makes it easy to capture, query, find, reuse, and learn from experiences so that mistakes are not repeated and work is not duplicated.

Knowledge is composed of the tacit **experiences, ideas, insights, values and judgments** of individuals. People gain knowledge both from their own and from their peers' expertise, as well as from the analysis of information (and data). Through the synthesis of these elements, new knowledge is created.

Knowledge is dynamic and context based. Knowledge puts information into an "ease of use" form, which can facilitate decision making. In Service Transition this knowledge is not solely based on the transition in progress, but is gathered from experience of previous transitions, awareness of recent and anticipated changes, and other areas that experienced staff will have been unconsciously collecting for some time.

Wisdom gives the ultimate discernment of the material and having the application and contextual awareness to provide a strong common sense judgment.

In summary:
- **Data** is quantitative collection of details (for example, number of incidents)
- **Information** derives additional facts by processing data (such as number of priority 1 Incidents occurring after year end processing)
- **Knowledge** uses information but includes an extra dimension from experience
- **Wisdom** - making correct decisions and judgments

9. Change Management

Objective

ST 4.2.1

"To ensure that changes are recorded, evaluated, authorized, prioritized, planned, tested, implemented, documented, and reviewed in a controlled manner."

Change is an everyday part of life. It is often said that the only constant in life is Change!

Change = Risk; therefore there is a need to manage it.

Scope

"Changes to base-lined service assets and configuration items across the service life-cycle."

Some changes will lie outside the scope of Change Management. These may be wider organizational and/or business changes that would give rise to RFCs that relate to services. At the opposite end of the scale, operational changes, such as printer repairs, may be deemed outside the scope.

Service Change - Definition

ST 4.2

"The addition, modification or removal of any authorized, planned or supported service or service component and its associated documentation."

Basic Concepts

ST 4.2.6
- **Change Types**
  - Normal
  - Standard
  - Emergency
- **RFC (Request for Change)** - formal communication seeking an alteration to one or more CIs
- **CAB (Change Advisory Board)** - assesses, prioritizes, and supports the authorization of changes

Change Proposals from Project Change Procedure

ST 4.2.4.3

Within the system, a record must be kept of all the changes proposed, the decisions made in relation to them, and the current status of the change. Some of the information in a change record will be created when an RFC is raised; the remainder will be added as the change progresses through its life. The RFC can be considered as a subset of the Change Record.

Terminology

- Change record
- Request for Change (RFC)
- Business case
- Related CMS information
- RFC Content:
- Unique number
- Trigger
- Description
- ID of items to be changed
- Reasons
- Effect of not doing
- CIs and baselines affected
- Proposer details
- Date/time raised
- Category
- Timescales, resources, etc
- Priority
- Risk assessment
- Back-out plan
- Impact assessment
- Knock-on effect
- Decision body
- Decision
- Authorized
- Date

Normal Change Process

ST 4.2.4.5

Normal Change Process
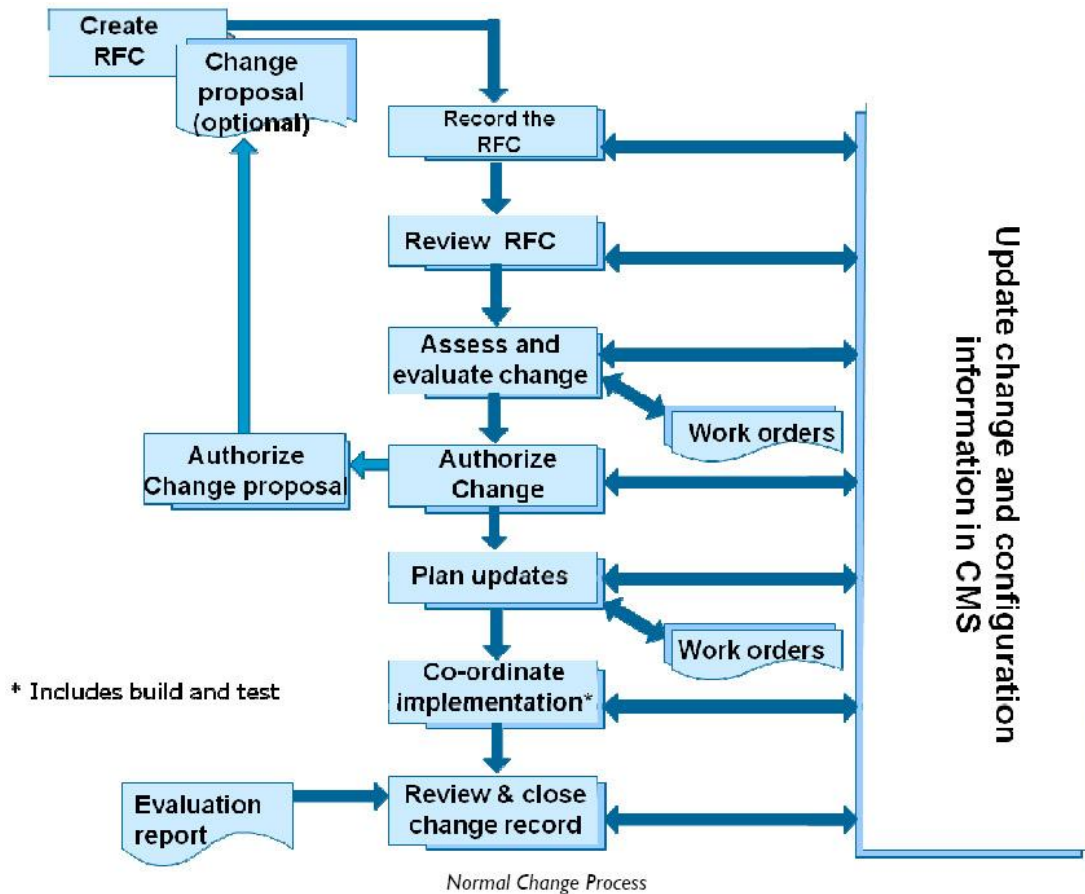
Normal Change is essentially pre-authorized change that has an accepted and established procedure for a specific requirement. They are fully assessed and authorized changes, including requests such as: change to service portfolios, change to a service or service definition, project change proposal, user access request, or operational activity.

Standard Change / Deployment Process

ST 4.2.6

Standard Changes are those where the approach is pre-authorized by change management since it has an accepted and established procedure that can be followed to satisfy a specific change requirement; they will usually be associated with Change Models.

Key aspects of standard changes are:
- Defined trigger
- Tasks are well-known, proven, and documented
- Advance authority is effectively given
- Budgetary approval is either preauthorized or within the requestor's control
- Usually low risk - but certainly well-understood

Standard Change / Deployment Process
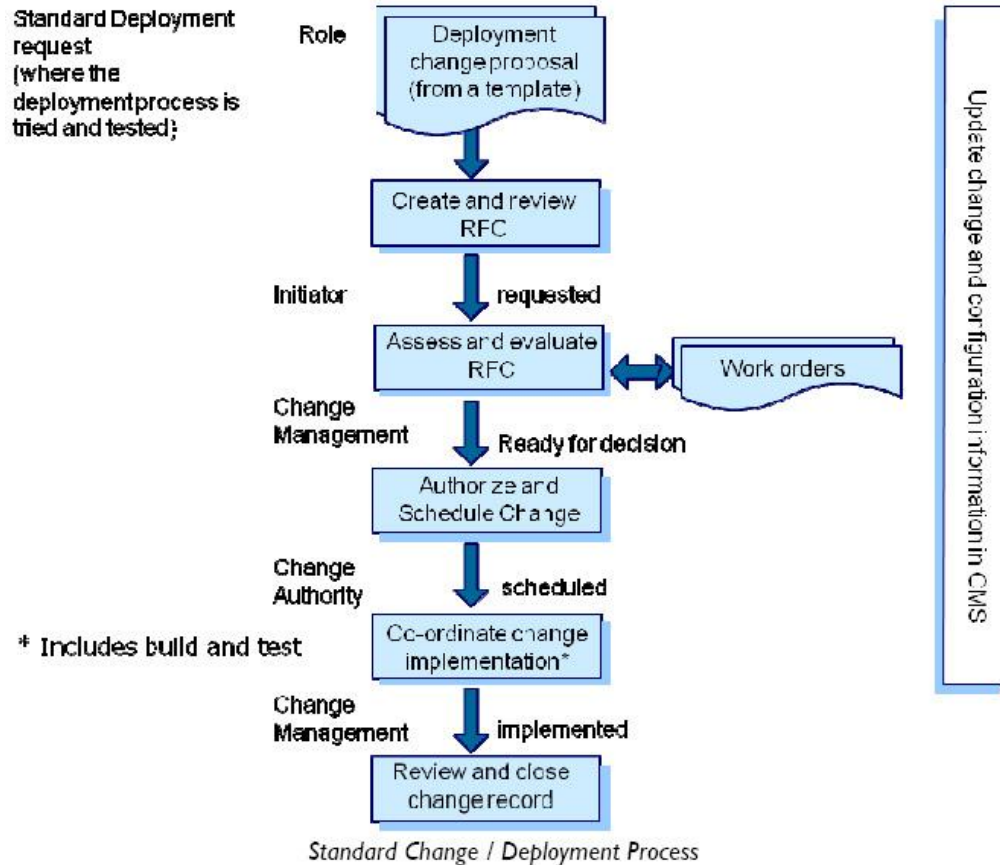
Emergency Changes

ST 4.2.6.9

Emergency Changes should be typically those repairing errors to a service that is having a high negative impact on an IT service and requires a quick response. The aim should be to keep emergency change to a minimum.
- Authorization - defined authority usual; must be clearly defined and documented - Emergency CAB (ECAB)
- Cycle will certainly be fast, but must be robust - hasty, poor changes only lead to further problems with risk from limited or no time for testing
- Some of the documentation may be retrospective

Assessing Impact

ST 4.2.6.4

Potential impact of change on services must be considered. The "7 Rs" as generic questions are a good starting point:
- Who **RAISED** the change?
- What is the **REASON** for it?
- What **RETURN** is required?
- What are the **RISKS** involved?
- What **RESOURCES** are required to deliver it?
- Who is **RESPONSIBLE** for build, test and implementation?

- What is the **RELATIONSHIP** with other changes?

Roles

ST 6.3.2.3
- **Change Authority** - formally authorizes change; level depends on type, size, risk of proposed change
- **Change Manager** - manages the process; duties cover all activities either directly or delegated to others
- **CAB** - assesses, prioritizes, and supports the authorization of changes, has TORs, meets regularly, clearly defined scope, links to (for instance) program management

Change Advisory Board (CAB)

ST 4.2.6.8

The **CAB** considers adoption or rejection of change and makes recommendations (accept, reject, amend). The CAB is normally chaired by the Change Manager.

Composition should follow change procedures, these should reflect:
- Change under consideration
- Possible need to vary across the meeting
- Customer and users view
- Should involve suppliers where useful
- May include Service Level Manager and Problem Manager

Potential members:
- Customer
- User manager
- User group representative
- Application
- Technical/specialist
- Service operations
- Facilities/office services
- Contractors/third parties
- Circumstance specific

Change Triggers

ST 4.2.7

Change triggers include:
- Legal/regulatory
- Organizational
- Policy and standards
- Business, customer, and user activity analysis
- New service
- Updates to existing portfolio
- Sourcing model
- Technology innovation

Change may be triggered at any point in the Service Lifecycle.

Typically categorized as:
- Strategic Change

- Changes to one or more services
- Operational Change
- Change to deliver improvement

Metrics

ST 4.2.8

Metrics can be used to judge process effectiveness, compliance to process, measure output, workload, and so on.

Key metrics include:
- Successful changes
- Failed changes
- Service disruptions caused by poor change
- Unplanned changes
- Change request backlog

Many of the KPIs will indicate success of an effective change management system. The base numbers themselves are important, but often it is understanding the reasons behind them that matters more.

Examples:
- The number of successful changes (defined as meeting the customer's cost/quality/time requirements); usually expressed as a percentage of all changes
- The number of failed changes - and more importantly the reason for the failure
- The number of defects etc caused by bad specs or poor impact assessment
- The number of unplanned or emergency changes - usually to fix

Challenges

ST 4.2
- The spread of those affected
- Balancing risk and need
- Stability versus responsiveness
- Balancing control and bureaucracy
- Culture
- Using the right measurements

Change impacts so many different people and groups across the organization that is difficult to ensure common levels of understanding about the importance of change management and the correct procedures to be followed.

Change is inevitable; in many cases essential. But the organization needs to define its acceptance of risk. Is it always necessary to be first to market - which might call for less rigorous testing and speedy decision making - or is it more important to ensure that nothing upsets the live services?

All humans like stability, but change management needs to be seen as responsive and an enabler of the right changes.

The process must allow change not stifle it - but under control.

There will be resistance, so the process must demonstrate effectiveness to counter this.

Measure the right things and use the results to seek improvement.

10. Release and Deployment Management

The goal is to deploy releases into production and establish effective use of the service in order to deliver value to the customer and to be able to hand over to service operations. The following objectives underpin this.

Objectives

ST 4.4.1
- Ensure there are clear and comprehensive plans enabling change projects to align their activities
- Release packages can be built, installed, tested, and deployed efficiently
- New or changed services meet the utility, warranty, and service levels
- Minimize unpredicted impact on production services
- Ensure satisfied customers and users and ITSM staff
- Ensure knowledge transfer to enable full customer utilization
- Ensure knowledge and skills transfer to support staff to enable full support and delivery of services

Concepts

ST 4.4.4
- **Release Unit** - a portion of a service or infrastructure that is normally released together
- **Release Package** - a <u>single release</u> unit or a structured set of release units

Release Units may vary depending on the service asset type or item. A decision on should be made on what is most appropriate, and identified.

Release Packages should be designed with consideration for the most appropriate method of deployment, and so that some release units can be removed if they cause testing issues.
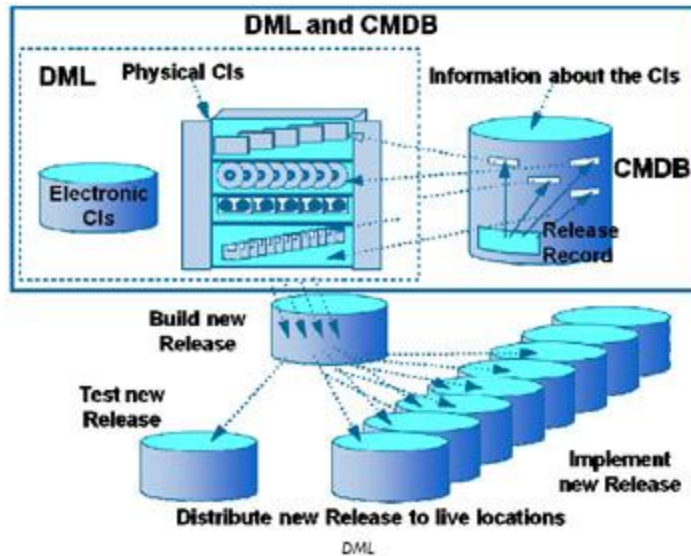
ST 4.4.53
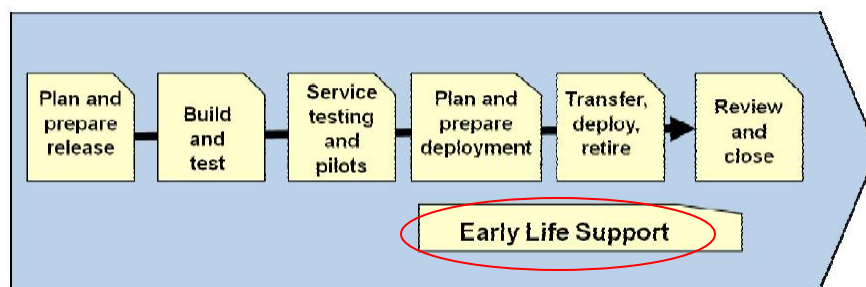
Basic diagram to represent the activities of Release and Deployment

Definitive Media Library (DML)

ST 4.3.4.3
- Secure library storing and protecting definitive, quality assured, <u>authorized versions of all media</u>
- Also includes copies of controlled documentation in electronic form
- It is the foundation for Release and Deployment

Definitive Spares

An area set aside for the secure storage of definitive hardware spares, same level of configuration as live, controlled, for (for example) additional systems or incident recovery.

Release Options

ST 4.4.4.2

Service Design will define the approach to transitioning. Common options are listed here. Consideration should be given to business activity and user profiles when planning and designing releases.
- Big-Bang - to all users at once
  - Phased - partial then scheduled roll-out
  - Incremental changes to all users
  - Unit by unit
  - Element by element
  - Combinations of these
- Push versus Pull
- Automation versus Manual

Roles

ST 6.3.2.7/8/9
- Release and Deployment Manager
- Release Packaging and Build Manager
- Deployment staff

The main role sits with the release and deployment manager but none can perform in isolation.

There are significant interfaces with (for example) Test, Security, and Quality.

Configuration Levels and Testing

ST 4.5.4.7

Using a model such as the <u>V-Model builds in service validation and testing early in the service lifecycle.</u> It provides a framework to organize the levels of configuration items to be managed through the lifecycle and the associated validation and testing activities both within and across stages.

The level of test is derived from the way a system is designed and built up. It maps the types of test to each stage of development. The V-Model provides one example of how the Service Transition levels of testing can be matched to corresponding stages of service requirements and design.
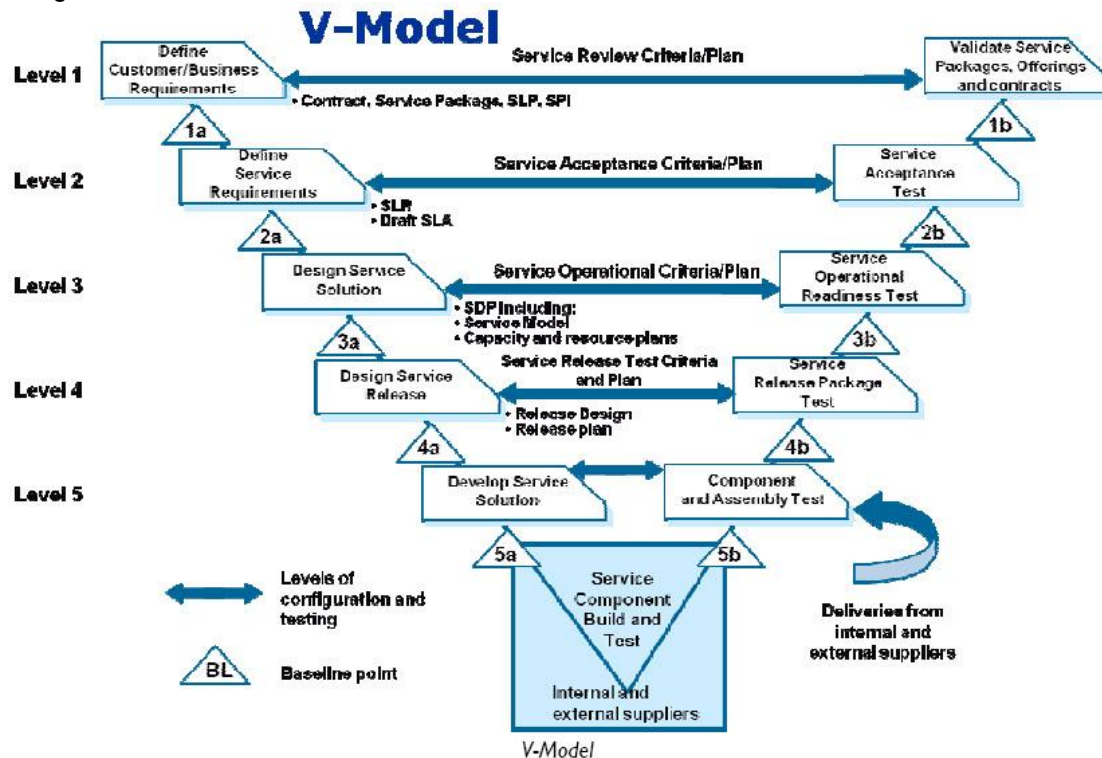
The left-hand side represents the specification of the service requirements down to the detailed Service Design. The right-hand side focuses on the validation activities that are performed against the specifications defined on the left-hand side. At each stage on the left-hand side, there is direct involvement by the equivalent party on the right-hand side. It shows that service validation and acceptance test planning should start with the definition of the service requirements. For example, customers who sign off the agreed service requirements will also sign off the service Acceptance Criteria and test plan.

Exercises—Service Transition

Answer the following questions and then compare your answers to the point locations shown beside the questions.

1. How many levels of service requirements are in the V-Model - See point "10"
2. What are the purpose of Service Assets and Configuration Management within Service Transition? - See point "7"

3. Explain Configuration Identification and Configuration Control - See point "7"
4. What three processes support the Service Live Cycle? - See point "5"
5. Understanding the relationship between key components will do what within the logic model of Service Transition? - See point "7"
6. What is the purpose of Knowledge Management? - See point "8"
7. What are the three types of changes? - See point "9"
8. What are the 7 "R's" in emergency changes? - See point "9"
9. What is a DML? - See point "10"

Service Operation

1. Session Objectives

On completion of this session you will be able to:
- Define and explain some of the key terminology and concepts of Service Operation
- Explain the high level objectives, scope, basic concepts, process activities, key metrics, roles, and challenges for Incident Management
- State the objectives, basic concepts and roles for Event Management, Request Fulfillment, Problem Management and Access Management
- Explain the role, objectives, organizational structures, staffing, and metrics of the Service Desk function
- State the role, objectives, and organizational overlap of:
  - Technical Management
  - Application Management
  - IT Operations Management
    - IT Operations Control
    - Facilities Management

2. Goals

SO 2.4.1
- To coordinate and carry out the activities and processes required to deliver and manage services at agreed levels to business users and customers
- To manage the technology that is used to deliver and support services
- To properly conduct, control and manage the day to day operations using the well designed and implemented processes from Service Design and Service Transition
- To monitor performance, assess metrics and gather data systematically to enable continual service improvement

3. Principles

- Managing day-to-day activities and technology
- Executing processes to optimize cost and quality
- Enabling the business to meet its objectives
- Effective functioning of components

4. Scope

SO 2.4.2

Includes the execution of all ongoing activities required to deliver and support services:

- The **services** themselves performed by the service provider, an external supplier of the user or customer of that service
- Service Management **processes** regardless of origin (such as Change in SD) are in use or receive input from SO
- **Technology** - the management of the infrastructure used to deliver services
- The **People** who manage the technology, processes, and services

5. Value

ST 2.4.3

"Service Operation is where the value is seen."

Service value is modeled in **Service Strategy**. The cost of the service is designed, predicted and validated in **Service Design** and **Service Transition**. Measures for optimization are identified in **Continual Service Improvement**. But SO is where any value is actually realized! Until a service is operational, there is no value being delivered.

- Services run within budget and ROI targets
- Design flaws fixed and unforeseen requirements satisfied
- Efficiency gains achieved
- Services optimized

6. Basic Terminology

SO 3.1

- **Function** - a logical concept referring to the people and automated measures that execute a defined process, activity or combination
- **Group** - a number of people who perform similar activities
- **Team** - a more formal group
- **Department** - formal organization structure
- **Division** - group of departments
- **Role** - set of connected behaviors or actions performed by a person, group, or team in a specific context

7. Achieving Balance

SO 3.2

One of the key responsibilities for Service Operations is **achieving balance**. There are many aspects of balance, each of which must be carefully considered when deciding upon the optimum way to respond to a set of requirements.

SO addresses the conflicts between the status quo and responding to changes in the business and technological environment.

SO 3.2.1
- Internal (IT as a set of technology components)

Versus
- External (IT as a set of services)

The external view of IT is the way in which services are experienced by users and customers. They do not always understand, nor care about, the details of what technology is used to deliver or manage the services. All they care about is the service meeting their requirements (Utility and Warranty).

The internal view is of the way the IT components and systems are managed to deliver the services. Since IT systems are complex and diverse, this often means multiple teams managing their own aspects of the total solution. They will tend to focus on achieving good performance and availability of "their" systems.

Both views are relevant and necessary, but an organization that focuses on one extreme or the other will not achieve value. Too far to the right and often promises are made that can't be met; too far to the left and expensive services delivering little customer value result.

Achieving this balance should consider:
- Maturity of the organization
- Culture of the organization
- Role of IT in the business
- Level of integration of management processes and tools
- Maturity of Knowledge Management (for example, Problem/Availability data)

Stability versus Responsiveness

SO 3.2.2

SO needs to ensure stability of the infrastructure and availability of services. SO also has to respond to change which may at times be unexpected, or have to happen quickly whilst under pressure.

Costs versus Quality

SO 3.2.3

Costs will increase in proportion to the requirement for higher quality. Marginal improvements for high quality services can be expensive. SO has to deliver agreed service levels in line with optimal costs, this must to some degree be dependent on good strategy and design activities especially financial management.

Reactive versus Proactive

SO 3.2.4
- Reactive activity - fire fighting - is still a reality in some IT organizations
- Proactive activity whist seen as a good thing can, in the extreme can be costly and can lose focus

8. Communication

SO 3.6 / SO Appendix B

Good communications are needed between SO teams and with other IT teams, departments, users, and customers.

The types of communication listed here are typical:
- Routine operational communication
- Communication between shifts
- Performance reporting
- Communication in projects
- Communications related to changes
- Communications related to exceptions or emergencies
- Training for new or customized processes and service designs
- Communication of strategy and design to Service Operation teams

9. Processes

SO 4.0
- Event Management
- Incident Management
- Problem Management
- Request Fulfillment
- Access Management

The processes in the above list are part of SO but others that will be carried out or supported during the SO phase of the Service Lifecycle are: Change, Capacity, Availability, Financial, Continuity, and Knowledge Management.

10. Event Management Process

SO 4.1

An **Event** is any detectable or discernable occurrence that has significance for the management of the IT infrastructure or the delivery of service and evaluation of the impact a deviation might cause to the services.

An **Alert** is a warning that a threshold has been reached, something has changed, or a failure has occurred.

Events are typically notifications created by an IT service, CI, or monitoring tool. Events are provided by good monitoring and control systems, using both active tools generating exceptions and passive tools detecting an correlating alerts generated by CIs.

Alerts are often created and managed by System Management tools and are managed by the Event Management Process.

Objectives

- To detect events, make sense of them, and determine appropriate control action
- To act as a basis for automating routine Operations Management activities

Concepts

SO 4.1.4

The following types of events can be identified:
- **Information -** signifying regular operations
- **Warning** - unusual but not exceptional
- **Exception** - would require intervention

Information events signify regular operation:
- A device indicates that it is still "alive"
- A message indicates an activity has completed normally
- An authorized user logs in to an application
- An email reaches its intended recipient

Typically no action is required, though clearly all the messages need to be recorded in case later forensic investigation is required.

A **warning** event signifies something unusual has occurred, but not something that constitutes an exception. Some form of intervention may or may not be required. At the least, closer monitoring is probably required. The situation may resolve itself, for example, an unusual workload mix causes one or more thresholds to be reached without breaching any service targets, but when one or more of the tasks completes, normal operational state is returned.

An **exception** signifies that an action is or will be required; for example:
- An unauthorized attempt to access an application/service
- Some component of a solution is unavailable
- A threshold is breached which is unacceptable
- A scan reveals unauthorized software on a PC

All types of events generate event notifications. The distinction between unusual and exception should be clearly defined.

Roles

SO 6.6.5.2

Typically Event Management tasks would be delegated to these functions:
- **Service Desk** (or operations bridge) - if the event is within the scope of their function (as an incident)

- **Technical and Application Management** - involved in design and transition so that the appropriate events are designed and built into the services and that procedures are in place
- **IT Operations** - may well monitor and respond where delegated; actions to be taken included in SOPs for teams

11. Incident Management Process

Definition

SO 4.2

An **Incident** is:

"An unplanned interruption to an IT Service or a reduction in the quality of an IT Service."

Failure of a Configuration Item that has not yet had an impact on a Service is also an Incident; for example, failure of one disk from a mirror set.

Normal Service is defined as in line with the SLA.

Objectives

- To restore normal service operation as quickly as possible
- To minimize the adverse impact upon business operations
- To ensure that the best possible levels of service quality and availability are maintained.

Scope

SO 4.2.2

- Any Event which disrupts or could disrupt a service
- Incidents can be reported/logged by:
  - Technical staff
 - Users
  - Event Management

Note:
- Not all Events are Incidents
- Service Requests are not Incidents (Service Requests are handled by Request Fulfillment)

SO 4.2.5

Covers the activities of the IM process:
- Identification - has the incident occurred?
- Logging - all must be logged; relevant information recorded to ensure full history recorded
- Categorization - must be relevant, consistent, supported by the tool set
- Prioritization - impact and urgency gives code, can be dynamic, guidance given to support staff
- Initial diagnosis - SD analyst

Incident Management Process
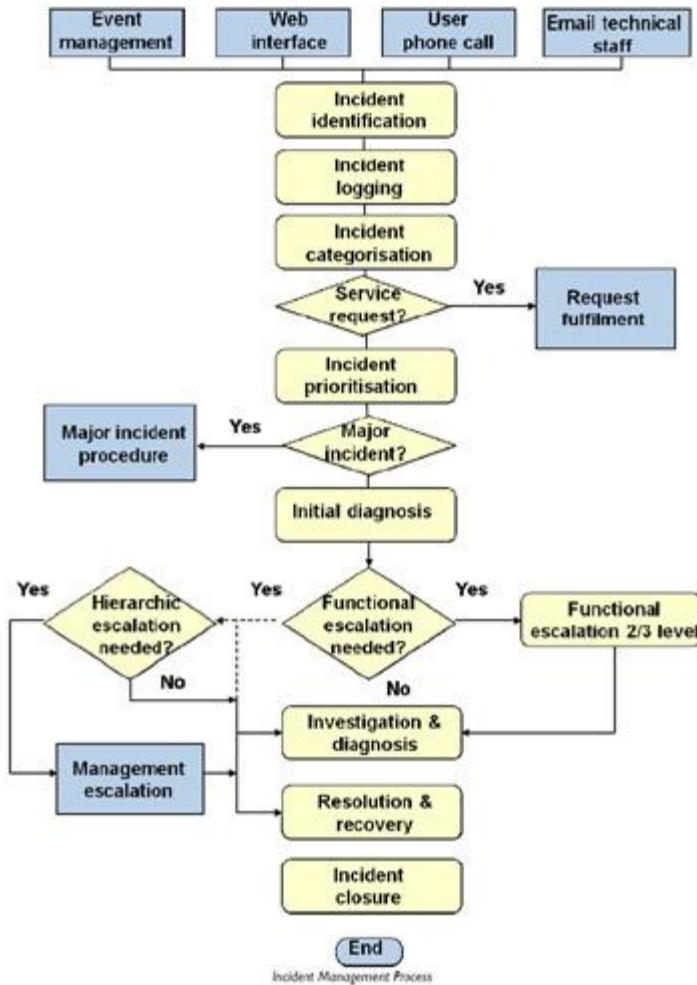
Major Incidents

SO 4.2.5.4

Major Incidents represent the highest **Category of Impact** for an Incident. A Major Incident results in significant disruption to the business. Special procedures need to be followed to ensure that all resources are available to deal with the incident speedily. The organization defines what constitutes a major incident.

An example of a simple prioritization system

Priority will be a combination of impact and urgency with reference to SLA targets.

All Incidents must be given a priority code that will determine how the incident is handled within agreed timescales.

Metrics

SO 4.2.8

Metrics are monitored and reported to assess the effectiveness and efficiency of the process and its operation.

Key metrics may be used for identifying process compliance to support **Critical Success Factors (CSF)**.
- Number of incidents
- Breakdown by stage
- Backlogs
- Number and percentage of major incidents
- Mean time to resolve by impact code
- Percentage handled within time
- Number and percentage of incidents handled per SD agent
- Number and percentage resolved remotely
- Number of incident per incident model
- Breakdown by time of day

Roles

SO 6.6.6
- Incident manager
- First line - Service Desk
- Second line - greater technical skills
- Third line - specialist groups

An **Incident Manager** has responsibility for:
- Driving the efficiency and effectiveness of the process
- Producing management information
- Managing the work of support staff
- Monitoring the effectiveness of IM and recommending improvements
- Developing and maintaining IM systems

- Managing Major Incidents
- Developing and maintaining the IM process and procedures

Since IM is the process that is typically executed by the service desk, the role of Incident Manager is often assigned to the Service Desk Manager (SO 6.6.1.2). Clearly this is dependent upon the size of the organization.

Irrespective, the IM must have the correct authority to be able to manage incidents through all levels.

Whereas **first-line staff** are typically service desk analysts, **second line staff** may have greater skills and time to analyze as opposed to call-handling.

Third-line staff are usually specialists working in internal or external support teams.

Challenges

SO 4.2.9.1

The challenges to successful Incident Management are:
- Early detection ability
- Need for logging and use of Self Help
- Availability of Problem and Known Error information
- Integration into Configuration Management System
- Integration into Service Level Management process

Self Help is being increasingly used as a consistent option to take pressure off first line staff and reduce cost. Web-based self help requires technology linked to Request Fulfillment and Event Management.

12. Request Fulfillment Process

The term **Service Request** describes varying demands placed on IT by users. Many are actually *small changes* - low risk, frequently occurring, low cost, and so on (such as password reset or software installation on a single PC) - or *information requests*.

As service requests can occur frequently and are low risk, they are better handled as a separate process. This removes pressure from Incident and Change Management.

Objectives

SO 4.3.1
- To provide a regular channel for users to request and receive standard services
- To provide information to users about service availability and access
- To source and deliver components of standard services
- To assist with general information, complaints or comments

Definition

SO 4.3.4

A request from a User for information, advice, or for a Standard Change or for Access to an IT Service, such as to reset a password or to provide standard IT Services for a new User.

Many requests recur frequently, so standard mechanisms can be defined for dealing with them. These are referred to as **Request Models**.

Concepts

- Predefined process-flow (model)
- Standard changes
- Request models

Roles

SO 6.6.7
- Service Desk - initially requests will be handled by the service desk
- Incident Management - service requests can be part of the IM process
- Service Operation teams - fulfilling the specific request may involve other Ops teams from within support; however, it is unlikely that there will be any new or separate roles created for handling requests

Self Help

SO 7.1 / SO 7.7.2.3

Self Help is the use of technology to handle Service Requests and some Incidents.

The characteristics of self help are that it is web-based, available 24 x 7, and that the customer is able to pick and choose from a variety of services on a menu, and then place them in a "shopping cart" for check-out.

Self Help Request Fulfillment
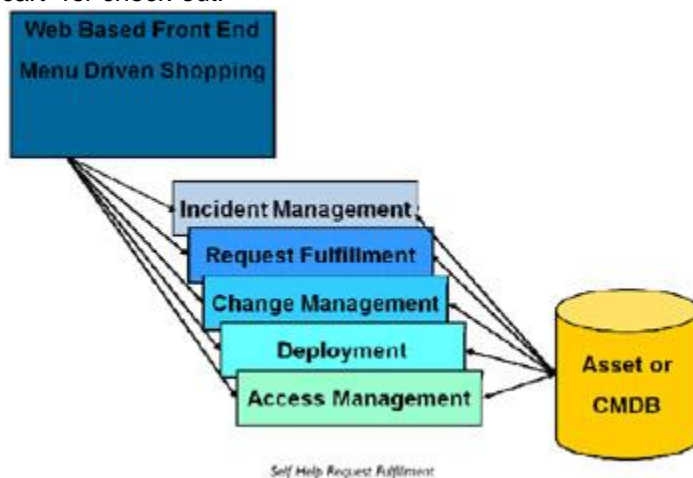
13. Problem Management Process

The **Problem Management** process manages problems through their lifecycle. It includes to all activities required to diagnose the root cause of incidents, determining and implementing

resolutions through change and release processes. PM will maintain information about problem, workarounds, and resolutions. PM has a close relationship with Incident Management.

Objectives

SO 4.4.1
- To prevent problems and resulting incidents from happening
- Eliminate recurring incidents
- To minimize the impact of incidents that cannot be prevented.

Problem Definition

"The unknown cause of one or more incidents"

Concepts

SO 4.4.4.1 / SO 4.4.5
- **Problem Models** - pre-defined steps for handling recurring types of problems
- **Workaround** - a temporary way of overcoming an incident, reducing or eliminating it where a full resolution is not yet available
- **Known Errors** - where diagnosis is complete and a workaround or permanent resolution found
- **Known Error Database** - stores Known Error records; available during Incident and Problem Diagnosis
- **Resolution** - action taken to repair an Incident or Problem or implement a workaround

Process Activities

SO 4.4.5
- Detection
- Logging
- Categorization
- Prioritization
- Diagnosis
- Create KE record
- Resolution

The reactive process is similar in its flow of activities to the Incident process.

Proactive PM is considered as part of Continual Service Improvement.

Roles

SO 6.6.8

The **Problem Manager** role is responsible for:
- Liaison with all resolving groups to ensure speedy resolution with SLA targets
- Ownership of the KEDB including protection, KE inclusion, and search algorithms
- Formal closure of Problem records
- Liaison with suppliers and third parties regarding their obligations
- All aspects related to major problems

Resolving Groups are specialist teams with in-depth knowledge and skills will typically deal with particular problems.

14. Access Management Process

Access Management (also known as **Rights** or **Identity Management**) is the process of granting users the right to use a service while preventing unauthorized access.

Security and **Availability** define policies for who is allowed to access what under which conditions. Collectively they are defining the **Confidentiality**, **Integrity**, and **Availability (CIA)** requirements/constraints for the users, services and the data. Access management is the execution level of ensuring/enforcing those policies.

Objectives

SO 4.5 / 4.5.1
- Execute the policies and actions defined in Information Security and Availability Management
- To provide the right for users to be able to use a service or group of services

Concepts

- Access - the level and extent of a service's functionality or data that a user is entitled to use
- Identity - the information about users that distinguishes them as an individual and verifies their status within the organization
- Rights (privileges) - settings whereby a user is provided access - read, write, execute, change, delete
- Service groups - aggregation of a set of users accessing a common set of services
- Directory services - a specific type of tool used to manage access and rights

Process Activities

- Requesting access
- Verification
- Providing rights
- Monitoring identity status
- Logging and tracking access
- Removing or restricting rights

Roles

SO 6.6.9
- **Service Desk** - main point of contact for requesting access to services and communication with users, as well as handling access related incidents
- **Technical and Application Management** - have roles throughout the service lifecycle, ensuring access control is designed into services and tested to ensure it performs as designed and performing access management activities during service operations
- **IT Operations Management** - monitors and supports the process

15. Service Operation Functions

SO 6.1

A **function** is a logical concept that refers to people and automated measures, and that executes a defined process, an activity or combination of activities.

Logical functions perform specific activities and processes - not necessarily mapping to organizational structures or individuals.
- Service Desk
- Technical Management
- Application Management
- IT Operations Management - includes two functions:
  - IT Operations Control
  - Facilities Management

16. Service Desk Function

SO 6.2.2

The **Service Desk** should be a **Single Point Of Contact (SPOC)** for IT users, handling incidents and service requests. Normal operations are referred to by SLAs, procedure, and so on.

Objectives

- To restore normal operations as quickly as possible

Responsibilities/Activities

- Logging all incidents/service requests, allocating categorization, and prioritization codes
- First line investigation and diagnosis
- Resolving incidents/service requests
- Escalation
- Closing all resolved incidents and requests
- Conducting customer satisfaction surveys
- Communication with users - progress, information
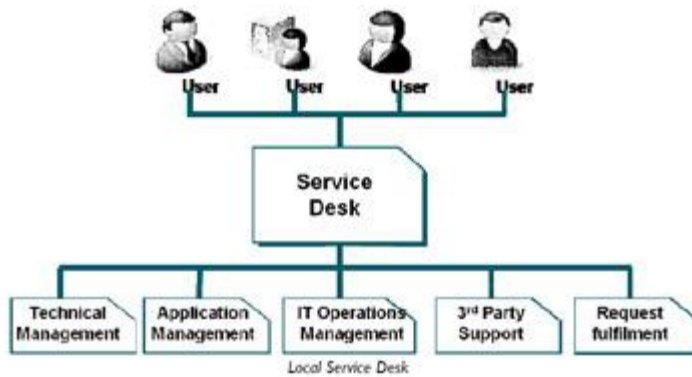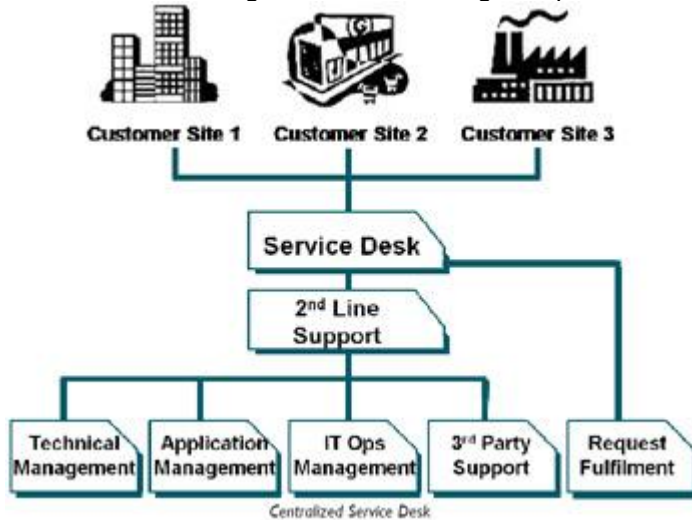- Updating CMS as agreed and authorized

Structure Types

SO 6.2.3

Service Desks can be structured in a number of ways:
- Local - located in or close to the community it serves

Local Service Desk

- Centralized - in a single location servicing multiple sites

Centralized Service Desk

- Virtual - may be spread over a number of geographical areas and requires control of consistency and uniformity; virtual using internet-based technology allows dispersed staff and supports "off shore" and home working

Virtual Service Desk
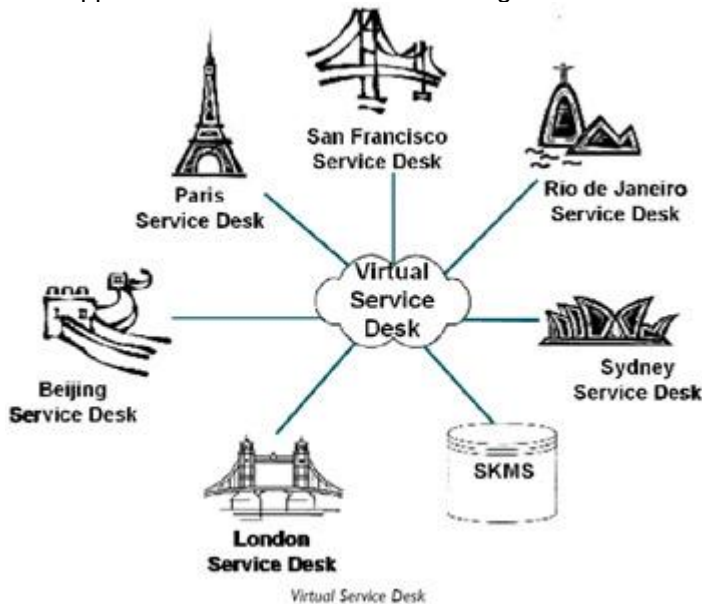
- Follow the sun - global solution that can provide 24 x 7 support
- Specialized

They are mutually exclusive, as a large multinational enterprise may deploy a combination of them.

Staffing

SO 6.2.4
- Staffing levels - must meet the demands of the business at any given time
- Skill levels - balance between response and resolution times, and cost; basic requirements are typically a balance of technical, communication skills, and business knowledge
- Training - must be adequately trained and kept up to date
- Staff retention - loss of staff can be disruptive, incentives, and environment should be considered
- Super users - can be used to liaise with the Service Desk, can filter requests and issues, and cascade information

Metrics

SO 6.2.5
- Customer/user satisfaction
- First-line resolution rate
- Average time to resolve an incident
- Average time to escalate an incident
- Average cost of handling an incident
- Percentage of customer/user update completed on time
- Average time to review and close a resolved call
- Break down of number of calls by time/day

It is easy and tempting to measure many items on a service desk as it is a prime source of data.

Unfortunately many measurable items are not really of any value in determining how well the desk is performing or where improvements could be made. Indeed, some metrics will encourage behaviors that are counter to the objectives of a good service desk. For example, simply tracking the number of calls an agent handles doesn't tell you much nor does the number they close. If they are measured (or have incentives) on pure numbers, they'll tend to seek volume over value.

17. Technical Management Function

SO 6.3.1

Technical Management is a function that covers groups, teams, and departments that provide technical expertise and overall management of the IT infrastructure.

Technical Management is the custodian of technical knowledge and expertise related to managing the IT infrastructure. It ensures the knowledge required to design, test, manage and improve IT services is identified, developed, and refined.

Technical Management provides the resources to support the IT management lifecycle. It ensures that resources are effectively trained and deployed.

Technical Management is responsible for:
- Maintenance of the technical infrastructure
- Documenting and maintaining the technical skills required to manage and support the IT infrastructure
- Diagnosis of, and recovery from, technical failures

18. Application Management Function

SO 6.3.2

"To help plan, implement, and maintain a stable technical infrastructure to support the organization's business processes."

Application Management is similar to Technical Management but manages applications throughout their lifecycle.

Objectives

SO 6.5.1
- To support the organization's business processes by helping to identify functional and manageability requirements for application software
- To assist in the design and deployment of applications
- To assist in the ongoing support and improvement of applications

The Application Management function:
- Contributes to the decision on whether to buy an application or build it
- Is the custodian of technical knowledge and expertise relating to the management of applications
- Provides resources to support the Service Management Lifecycle

SO 6.5.2

Application Management's objectives are achieved through:
- Well designed and highly resilient, cost-effective technical topology
- Required functionality is available to achieve business outcomes
- Use of adequate technical skills to maintain infrastructure in optimum condition
- Swift use of technical skills to diagnose and resolve any technical failures

19. Operations Management Function

SO 6.4

The **IT Operations Management** function applies to the group/team/department that performs day-to-day operational activities. These activities involve the day-to-day running of the IT infrastructure to deliver IT services at agreed levels to meet stated business requirements.

The IT Operations function:

- Executes the ongoing activities and procedures required to manage and maintain the IT infrastructure so as to deliver and support IT Services at the agreed service levels
- Continually adapts to business requirements and demand

Objectives

SO 6.1
- To maintain the 'status quo' to achieve stability of the organization's day-to-day processes and activities
- Regularly scrutinize and improve service at reduced cost, while maintaining stability
- Swiftly applying operational skills to diagnose and resolve any IT operations failures that occur

Concepts

Operations Management has two functions which are generally formal structures:
- IT Operations Control:
    - Ensures routine operational tasks are carried out
    - Provide centralized monitoring and control activities
    - Based on an Operational Bridge or Network Operations Centre
- Facilities Management:
    - Covers the management of the physical environment
    - Refers to Data Centers, computer rooms
    - May include management of outsourced facilities

There are close relationships between these functions. Though the activities are defined in the functions, they may be carried out in the same department, and different points within the Service Lifecycle.

20. Overlap of Functions and Operational Activities
- **Technical Management** and **Operations Management** both play a role in management and maintenance of the IT infrastructure
- **Technical Management** and **Application Management** both play a role in the design, testing, and improvement of CIs that form part of IT services
- **Application Management** and **Operations Management** both play a role in application support

In addition to being responsible for the specific processes covered in this session, Service Operation is responsible for *executing* many processes that are owned and managed by other areas of Service Management. This shows the processes in which operations becomes involved.

For example with Capacity Management:
- Capacity and performance monitoring
- Capacity and performance trends
- Storage of capacity management data
- Demand management
- Workload management
- Modeling and applications sizing
- Capacity planning

Involvement in:
- Change Management
- Configuration Management
- Release and deployment
- Capacity Management
- Availability Management
- Knowledge Management
- Financial Management
- IT Service Continuity Management

Service Operations Activities
- Monitoring and control
- IT operations
- Mainframe management
- Server management and support
- Network management
- Storage and archive
- Database administration
- Directory services management
- Desktop support
- Middleware management
- Internet/web management
- Facilities and data centre management
- Information security management and service operation
- Improvement of operational activities

Exercises—Service Operation

Answer the following questions and then compare your answers to the point locations shown beside the questions.
1. Show what value Service Operations has to the organization - See point "5"
2. What should be considered when achieving balance within SO - See point "7"
3. Name three types of communication required for successful SO - See point "8"
4. What is the definition of an "event"? - See point "10"
5. What is the definition of an "incident"? - See point "11"
6. What is the objective for Problem Management? - See point "13"
7. What are the different structure types of a Service Desk? - See point "16"
8. What role do both Technical and Operational Management play? - See point "20"

Continual Service Improvement

1. Session Objectives

On completion of this session you will be able to:
- Describe why Continual Service Improvement is a vital part of a good practice approach
- Explain the Continual Service Improvement Model and Deming Cycle
- Demonstrate the value of measurement
  - Baselines
  - Types of metrics
- Know the 7 step improvement process

SS SD ST SO CSI 1.2.3

The ITIL core architecture is based on a Service Lifecycle. Each volume of the core is represented in the Service Lifecycle.
- Service Strategy (SS) represents **policies** and **objectives**
- Service Design (SD), Service Transition (ST) and Service Operation (SO) are progressive phases of the lifecycle that represent change and transformation
- Continual Service Improvement (CSI) represents **learning** and **improvement**
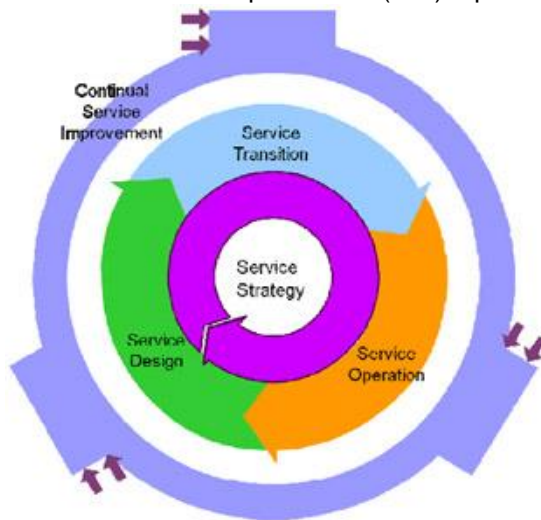
2. Goals

CSI 1.3.1 / 2.4.1

This section shows why CSI is vital within all organizations to ensure the quality of the services being delivered.

Business can fail if processes are:
- Out of date
- Inadequate
- Cumbersome
- Not business focused

Impacts of poor process include:
- Loss of productive hours
- Escalating costs
- Loss of reputation

Tasks within CSI:
- Evaluating and improving quality of services and overall maturity of Service Management
- Primarily align services delivered with ever changing business needs:
  - Align and realign IT with the business

- o   Identification and implementation of improvements
- Consider processes throughout the Service Lifecycle
  - o   Improve effectiveness and efficiency of existing processes
  - o   Understand cost implications
- Ensure all processes contain goals / objectives that are measurable

3. Objectives

CSI 2.4.2
- To ensure that Service Management processes continue to support the business
- To monitor Service Level achievements and where necessary enhance processes

The objectives of CSI promote the fact that quality is key to being able to achieve and maintain high levels of service provision.

The processes throughout the lifecycle need to be reviewed and analyzed and improved where it would lead to increased efficiency and effectiveness in how the service is provided. To be able to make these improvements there must be measurement of what is happening, which can take the form of **Service Level Achievements**.

Cost will also be important and there must be a balance between this and what will lead to customer satisfaction.

These initiatives should be supported by the use of Quality Management methods such as Deming Plan Do Check Act as used in ISO/IEC 20000.

CSI objectives are achieved by:
- Reviewing what is happening
- Analyzing findings
- Producing recommendations for improvement

CSI covers processes throughout the Lifecycle (Strategy, Design, Transition and Operation) and also specific ITSM processes.

4. Scope

CSI 2.4.3

These are the three main areas addressed.
- The health of ITSM as a discipline is maintained
- The Service Portfolio is continually aligned to current and future business needs
- The maturity of the IT processes for each service in a continual service lifecycle model

Introducing Service Management is not a one off exercise; an iterative approach is required.

Scope activities would include:
- Reviewing management information for service level achievement
- Reviewing management information for process achievement
- Conduct maturity assessments of process activity

- Conduct audits for staff and process compliance
- Review deliverables
- Make recommendations
- Conduct Service Reviews

5. Business Value

CSI 2.4.5

This looks at the value CSI provides and defines the terms that can be used. There are four ways the value can be categorized:
- **Improvement -** comparing the outcomes before and after measurement to show an improvement or not
- **Benefit -** a gain has been made through improvement
- **Return on Investment (ROI) -** amount of gain taking into account the investment required
- **Value on Investment (VOI) -** additional value of non-monetary benefits

6. Deming Cycle - Plan Do Check Act (P D C A)

CSI 3.6

Continual Service Improvement promotes increased quality.

Edwards Deming Philosophy of Management - enabling:
- Achievement of higher quality
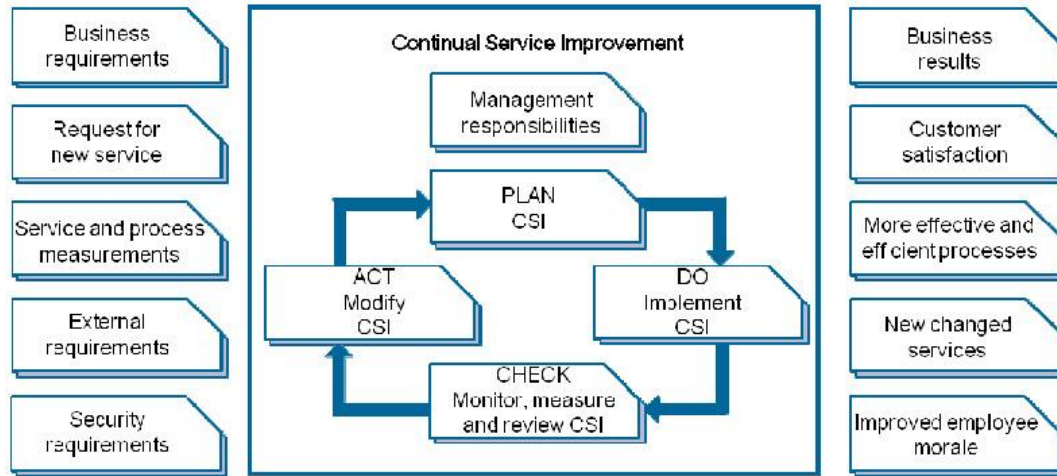- Increased productivity
- Improved competitive position
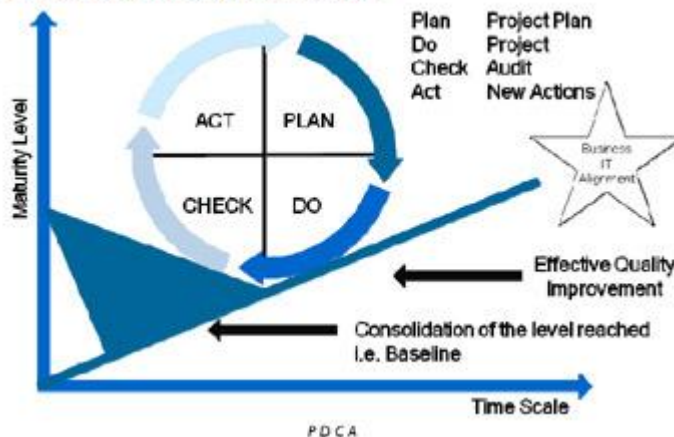
- Repeatable
- Allows for periods of consolidation and stabilization
- Supports CSI in two ways
  - Implementation of improvements
    - All four stages

- o Identification of ongoing improvement
  - Concentrating on Act
- Underpinned by a process-led approach

CSI and the Deming Cycle

CSI 5.5

CSI and the Deming Cycle

Plan

Requires the definition of:
- Goals, objectives, scope
- Setting out what is to be achieved
- Roles and responsibilities
- Who will be required
- Process development, techniques, and tools
- How it will be done
- Interfaces to the Service Lifecycle
- Where it fits

Do

This should consider:
- Financial Requirements
- Funding and budgets
- People
- Documented and resourced roles and responsibilities
- Products
- Policies, plans, procedures
- Tool provision
- Communication and training
- Integration
- Strategy Design Transition and Operation

Check

Monitor measure and review:

- CSI objectives and plans achieved
- Reporting against plans
- Review documentation
- Process assessments and audits
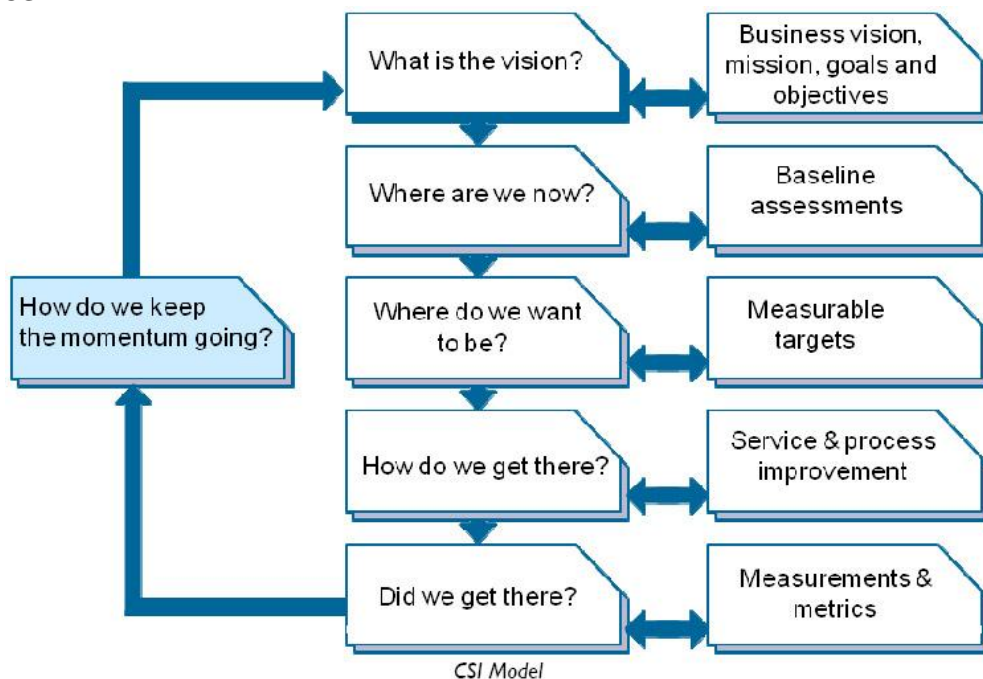- Allows identification of improvement opportunities

Act

Enhancements identified could relate to all aspects of the process, required changes could be in:
- Policies
- Procedures
- Roles and responsibilities
- Improvements are implemented in this stage

7. CSI Model

CSI2.44

CSI Model

This illustrates the classic service model approach which can be adopted.
- Consists of six steps
- Can be applied at process and service levels
- Forms an iterative cycle
- Fundamentally supports structured Service Improvements

8. Measurement

CSI 4.1
- Basis of CSI
- Objective view required
- Enables
  - Current status assessment
  - Improvement area identification
  - Quantification of enhancements made
- Needs to be understood and planned

What do you measure? All data that has been identified as needed and measurable, from automated and manual sources need to be measured.
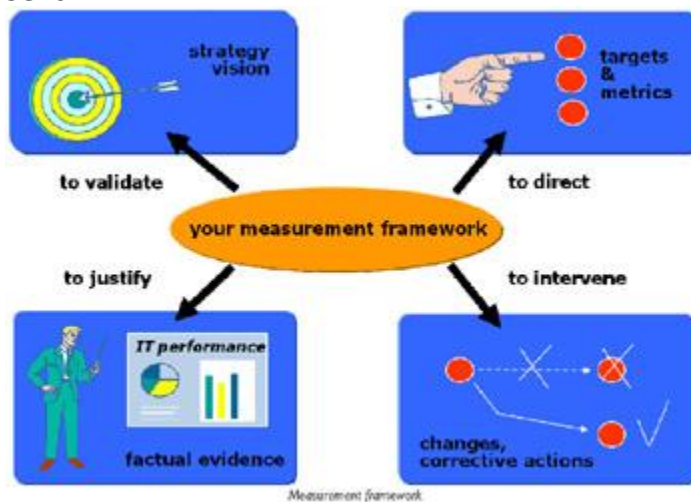
Apply **SMART** principles (Specific, Measurable, Achievable, Relevant/Realistic, Timely).

Should be monitored and measured throughout the Service Lifecycle.

There is a strong relationship between CSI and other lifecycle stages and key processes.

Value

CSI 3.7.2

Measurement framework.

Reasons for monitoring and measuring:
- **Validate -** soundness of previous decisions
- **Direct -** set direction for activities in order to meet targets, main reason for monitoring and measuring
- **Justify -** produces factual evidence or proof that course of action is required
- **Intervene -** identifies requirement for intervention including changes or corrective actions

9. Baselines

CSI 3.7.1

A **baseline** enables:

- A view of the current situation as a starting point for comparison
- A clear initial data point for future improvement

Baselines need to be documented. They are applicable at the following levels:
- Strategic (goals and objectives)
- Tactical (process maturity)
- Operational (metrics and KPIs)

Baselines apply to current data being collected.

# 10. Seven Step Improvement Process

CSI 3.7.3

Objective

- To support the Continual Service Improvement Stage of the Service Lifecycle

Concepts

- 7 Steps constitute a knowledge spiral
- Knowledge from one level of the organization becomes input to the next
- Care must be taken to ensure that the gap between what should be measured and what can be measured is minimal

Structured approach using measurement to confirm and improve service provision.

Uses organization's vision and associated Strategic Tactical and Operational goals.

Seven Step Improvement Process
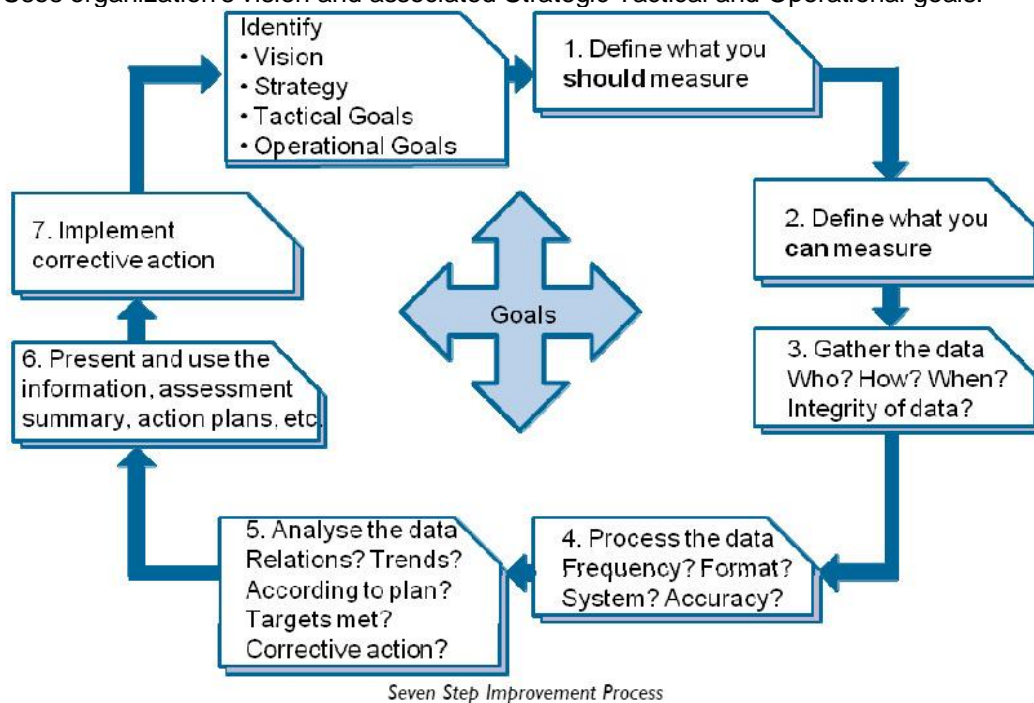
Determines activities:

1. Define what should be measured
2. Define what can be measured
3. Gather the data
4. Process the data gathered
5. Analyze the data
6. Present the findings and use them
7. Implement corrective actions

11. Metrics

CSI 4.1.2

If no metrics are in place:
- Set up data collection
- Some data is better than no data
- Refine collection and accuracy over time

Three types of metrics:
- Technology
- Service
- Process

Technology Metrics

Focused on:
- Components
- Applications

Information required includes:
- Availability
- Reliability
- Performance

Process Metrics

Also compliance to process.
- Based around Service Management Processes
  - Key Performance Indicators (KPIs)
  - Critical Success Factors (CSFs)
- Assessed in Service Reviews
- KPIs provide details on:
  - Quality
  - Value
  - Performance
  - Compliance
- Input for identifying for process improvement opportunities

Service Metrics

Help with maturity as well as service achievement.

- Made up of information gathered in Technology and Process
- Show end-to-end information for each service
- Often presented as business facing

12. Roles

- Service Manager
- Continual Service Improvement Manager
- Service Owner

Service Managers

CSI 6.1.2
- Breadth of managerial skill and experience
- Complex program/project management
- Understanding Business/ commercial strategy
- Full lifecycle management of products and services
- Customer relationship management
- Recognition of new opportunities
- Leadership
- Financially astute

CSI Manager

CSI 6.1.3
- Singularly responsible for all improvement initiatives
- Communication of CSI vision
- Provides resources
- Liaises with Service Owners
- Prioritizes improvements required
- Ensures:
  - Service Requirements defined
  - SIP in place
- Metrics and measurements
- Feedback on service CSFs and KPIs
- Leads, mentors, and influences

Service Owners

CSI 6.1.4

The Service Owner is accountable for a specific service within an organization regardless of where the underpinning technology components, processes or professional capabilities reside.

Service ownership is as critical to service management as establishing ownership for processes which cross multiple vertical silos or departments.

13. IT Governance

CSI 3.10

There is an increased drive towards business value in organizations that are increasingly IT dependent. There is pressure on IT to:
- Comply with regulation and legislation
- Do more with less

Governance ensures:
- Policies and strategies implemented
- Processes correctly followed

CSI underpins this drive for greater business value and efficiency. Good governance is strategically linked with performance metrics. Responsibility for governance should lie at board/executive level.

Exercises—Continual Service Improvement

Answer the following questions and then compare your answers to the point locations shown beside the questions.
1. What are the three main areas addressed within the scope? - See point "4"
2. What are the four ways value can be categorized? - See point "5"
3. What are the activities within the Deming Cycle? - See point "6"
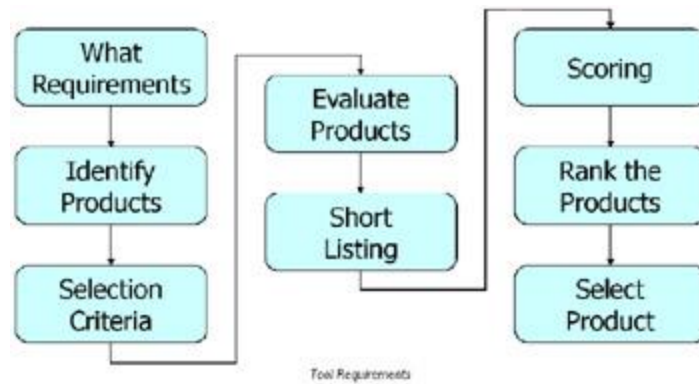4. What is the 7 step improvement process? - See point "10"

Technology and Architecture

1. Tool Requirements

SD 7.2

Tool Requirements

Produce a clear **Statement of Requirements (SoR)** that identifies the Business Requirements together with the mandatory facilities and those features that it would be "nice to have". Also identify the site policies and standards to which the product must conform.

Such standards may include it running under particular system software or on specific hardware.

Selecting the right tool means paying attention to a number of issues:
- An 80% fit to all functional and technical requirements
- A meeting of ALL mandatory requirements
- Little (if any) product customization required
- Adherence of tool and supplier to Service Management Best Practice
- A sound data structure and handling
- Integration with other Service Management and Operational Management tools
- Support of open standards and interfaces
- Business-driven not technology-driven
- Administration and maintenance costs within budget
- Acceptable levels of maintenance and Release Policies
- Security and integrity
- Availability of training and consultancy services
- Good report generation
- Scalability and growth

2. Tools with Service Transition

Technology, in the form of both enterprise-wide tools and specific transition tools, has a major role to play in Service Transition and should be designed into solutions.
- Application Management Tools
- Service Dashboards and Reporting Tools
- Data Mining Tools
- Measurement and Reporting Systems
- Test Management and Testing Tools
- Deployment and Logistics Systems

In addition to those listed above, the following support the wider scope and will provide automated support for some elements of Service Transition Management:
- IT Service Management (ITSM) Systems
- Enterprise Frameworks (that provide integration capabilities to link in the CMDB)
- System Management and Network Tools
- Service Knowledge Management System (SKMS)

- Collaborative, Content Management, and Workflow Tools
- Extract/Load and Data Transform Tools
- Database and Test Data Management Tools
- Copying and Publishing Tools
- Release and Deployment Technology

3. Tools with Service Design
- Hardware and Software Design
- Environmental Design
- Process Design
- Data Design
- Service Lifecycle Management

There are many tools and techniques that can be used to assist with the design of services and their associated components. Integrated IT Service Management technology including a Configuration Management System (CMS) and Service Knowledge Management System (SKMS) provide essential support in this space.

Tools and techniques are required to promote Service Design's ability to design against the requirements for Hardware, Software, Environmental, Process, and Data.

Tools should also assist the management of all stages of the service lifecycle including all aspects of service performance and service achievement and so must be capable of supporting the measurement, reporting and management of SLAs, OLAs, contractors and suppliers.

Consolidated metrics and metrics trees, with views from management dashboards down to detailed component information, performance and fault analysis are key.

The ability to have consistent and consolidated views across all processes, systems, technologies and groups ensures Service Design can operate to the most effective levels, promoting the management of service costs, relationships, interfaces and inter-dependencies.

Tools should generate informed decision making through accurate information and analysis by enabling a comprehensive set of search and reporting facilities to be undertaken against the data compiled through the integration of the business and its processes with IT services, systems and processes

The utilization and management of the Service Portfolio and Service Catalog is integral to Service Design.

4. Tools with Service Operation

An integrated IT Service Management technology is needed that includes the following core functionality:
- Self Help Functionality - such as a web front-end for users allowing screens to be defined offering a menu-driven range of self help and service requests with a direct interface to the back-end process handling software
- A Workflow/Process Control Engine - enabling the pre-definition and control of defined processes such as an Incident Lifecycle, Request Fulfillment Lifecycle, Problem Lifecycle, and Change Model

- Integrated CMS - capturing and linking an organization's IT infrastructure assets, components, services and any ancillary CI's (such as contracts, locations, licenses, suppliers, incidents, problems, known errors and changes, and so on)
- Verification of CMS data (and auto population) - assisting in License Management and audit
- Control of user "Desktop" - enables SD analysts and other support groups to conduct investigations or correct settings and so on and provide more efficient and effective support
- Diagnostic Scripts - will promote the ability of Service Desk and other support groups to assist and diagnose incidents more quickly
- Reporting Capabilities - should be inherent within the tool/technology to promote the efficient production of Management Information through appropriate reports
- Dashboard Type Technology - provides "at a glance" visibility of overall IT service performance

5. Tools with Continual Service Improvement

The functionality of integrated IT Service Management technology assists CSI as follows:
- Systems and Network Management - error messages generated
- Event Management - events created when a threshold has been met or an error condition is discovered
- Incident/Problem Resolution - automation of systems
- Knowledge Management - creates access to previous "cases" with proven resolution data associated with the current Incident or Problem / enables raw data to be captured into a single repository for collective statistical analysis
- Service Request and Fulfillment - defines the Services within a catalog structure in conjunction with the Business Customers and creates a Service Portal
- Performance Management - assists in the collection of availability, capacity, and performance data
- Security Management - supports and protects the integrity of the network, systems and applications, and guarding against intrusion and inappropriate access and usage
- Financial Management - the association of raw metering usage data from a variety of sources (including operating systems, databases, middleware and applications) to specific users of services from specific departments

6. Generic Requirements

SO 7.1.1

An integrated ITSM technology (toolset) is needed that includes the following functionality:
- Self Help - to support (for example) service requests
- Workflow - enables responsibilities, timescales, escalation, and alerts to be predefined
- Integrated CMS - enable links to Incident, Problem, Change, and so on

Exercises—Technology and Architecture

Answer the following questions and then compare your answers to the point locations shown beside the questions.
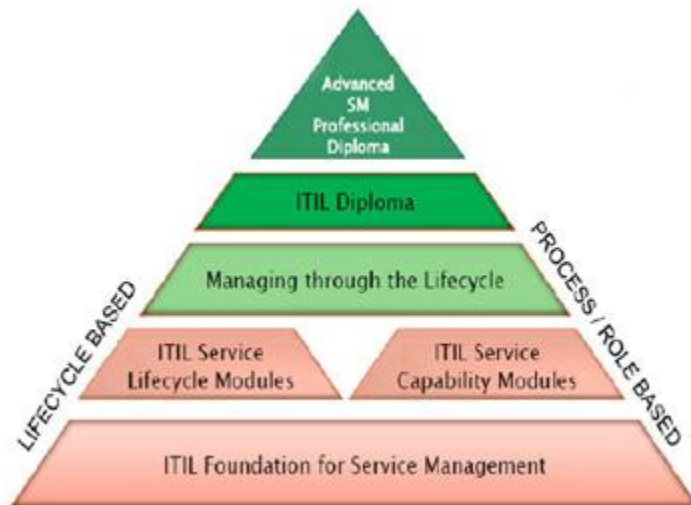
1. Why is it necessary to produce a clear Statement Of Requirements (SoR)? - See point "1"

Sample Examination

1. ITIL v3 Certification Scheme

Foundation Level

- IT Service Management Foundation Certificate

Intermediate Levels

- ITIL Service Lifecycle Modules
- ITIL Service Capability Modules
- Managing through the Lifecycle

ITIL Advanced Diploma

- Credit based scheme
- Modular in design
- Career path orientated
- On Demand examinations
- Credits gained from previous V2 awards
- V2 to v3 bridging courses

Credits

The following credits are awarded for both V2 and V3 courses:
- V2 Foundation = 1.5 credits
- V3 Foundation = 2.0 credits
- V3 Foundation Bridge = 0.5 credits
- V2 Single Practitioners = 1 credit each
- V2 Combined Practitioners = 3.75 each

ITIL Service Lifecycle Modules:
- Service Strategy = 3 credits
- Service Design = 3 credits
- Service Transition = 3 credits
- Service Operation = 3 credits
- Continual Service Improvement = 3 credits.

ITIL Service Capability Modules:
- Design and Optimization (D&O) = 4 credits
- Portfolio and Relationship (P&R) = 4 credits
- Monitoring and Control (M&C) = 4 credits
- Operation and Support (O&S) = 4 credits
- Managing through the Lifecycle = 5 credits
- V2 Managers certificate = 15/17 credits
- V3 Managers Bridge = 5 credits

All of the above credits are still pending sign-off by the qualifications board and are therefore subject to change.

2. Foundation Certificate Examination

The **IT Service Management Foundation Certificate** has become the IT industry's de-facto professional qualification in the field of IT Service Management. It takes as its syllabus ITIL v3.

The format of the exam required to gain the foundation certificate is as follows:
- 1 hour
- 40 multiple choice questions
- 26 correct to pass (65%)
- Independently invigilated and marked
- Results within three weeks

3. The ITIL v3 Foundation Examination Sample Paper

Version 3.0

Multiple Choice

Instructions

- All 40 questions should be attempted.
- There are no trick questions.
- All answers are to be marked on the original examination paper.

- Please use a pen to mark your answers with either a ˜ or x .
- You have 1 hour to complete this paper.
- You must get 26 or more correct to pass.

Candidate Number: ....

ITILv3FoundationSample3_v3.0 - 07 August 200 Version 3.0 (Live) Owner - Nikki Kelly

1. What does the 'Service V model' represent?
    a. A strategy for the successful completion of all service management projects
    b. The path to Service Delivery and Service Support for efficient and effective utilization of resources
    c. Levels of testing required to deliver a Service Capability
    d. **The business perspective as perceived by the customer and the user of services**

2. Technical Management is NOT responsible for?
    a. Maintenance of the technical infrastructure
    b. Documenting and maintaining the technical skills required to manage and support the IT Infrastructure
    c. Defining the Operational Level Agreements for the technical teams
    d. **Diagnosis of, and recovery from technical failures**

3. The priority of an Incident is BEST described as?
    a. **The relative importance of the Incident based on impact and urgency**
    b. The speed with which the Incident needs to be resolved
    c. The number of staff that will be assigned to work on the Incident so that it is resolved in time
    d. The escalation path that will be followed to ensure resolution of the Incident

4. What is the role of the Emergency Change Advisory Board (ECAB)?
    a. To assist the Change Manager in ensuring that no urgent Changes are made during particularly volatile business periods
    b. To assist the Change Manager in implementing Emergency Changes
    c. To assist the Change Manager in evaluating Emergency Changes and to decide whether the Change should be approved
    d. **To assist the Change Manager in speeding up the Emergency Change Process so that no unacceptable delays occur**

5. A Service Owner is responsible for which of the following?
    a. Continual Improvement of the service
    b. Designing and documenting a service
    c. **Carrying out the Service Operations activities needed to support a service**
    d. Producing a Balanced Scorecard showing the overall status of all services

6. Operations Control refers to?
    a. The managers of the Technical and Applications Management functions
    b. **Overseeing the execution and monitoring of IT operational events and activities**
    c. The tools used to monitor and display the status of the IT Infrastructure and Applications
    d. The situation where the Service Desk is required to monitor the status of the Infrastructure when Operators are not available

7. Which of the following statements is CORRECT about patterns of demand generated by the customer's business?
    a. They are driven by patterns of business activity
    b. It is impossible to predict how they behave
    c. It is impossible to influence demand patterns
    d. They are driven by the delivery schedule generated by Capacity Management
8. What is the main reason for establishing a Baseline?
    a. To standardize operation
    b. For knowing the cost of services provided
    c. For roles and responsibility to be clear
    d. For later comparison
9. Which of these is the CORRECT description of normal service operation?
    a. The service is operating in the way it usually does when there hasn't been an incident
    b. The service is providing all functionality and performance that the business wants
    c. The service is operating within the limits defined in the Service Level Agreement
    d. All users are able to log in to the service and use it
10. Which of the following BEST describes the purpose of Event Management?
    a. The ability to detect events, make sense of them and determine the appropriate control action
    b. The ability to implement monitoring tools
    c. The ability to monitor and control the activities of technical staff
    d. The ability to report on the successful delivery of services by checking the uptime of infrastructure devices
11. The main objective of Availability Management is?
    a. To monitor and report availability of services and components
    b. To ensure that all targets in Service Level Agreements (SLAs) are met
    c. To guarantee availability levels for services and components
    d. To ensure that service availability matches or exceeds the agreed needs of the business
12. Defining the functional requirements for a new service is part of:
    a. Service Operation: Application Management
    b. Service Strategy: Service Portfolio Management
    c. Service Design: Design the technology architecture
    d. Service Design: Design the service solutions
13. Which of the following are characteristics of every process?
    1. It is measurable
    2. It is timely
    3. It delivers a specific result
    4. It responds to a specific event
    5. It delivers its primary results to a customer or stakeholder
        a. 1, 2, 3 and 4 only
        b. 1, 2, 4 and 5 only
        c. 1, 3, 4 and 5 only
        d. All of the above
14. Which of the following is NOT one of the ITIL core publications?
    a. Service Optimization
    b. Service Transition
    c. Service Design
    d. Service Strategy
15. There are 7 different sourcing strategies that a company can use. What is the newest form of outsourcing?
    a. Knowledge Process Outsourcing
    b. Partnership or multi-sourcing
    c. Business Process Outsourcing (BPO)

d. Application Service Provision

16. Which of the following identifies two Service Portfolio components within the Service Lifecycle?
    a. **Service Pipeline and Service Catalog**
    b. Service Knowledge Management System and Service Catalog
    c. Service Knowledge Management System and Service Pipeline
    d. Service Pipeline and Configuration Management System

17. Consider the following statements:
    a. Continual Service Improvement (CSI) provides guidance on how to improve process efficiency and effectiveness
    b. CSI provides guidance on how to improve services
    c. CSI provides guidance on the improvement of all phases of the Service Lifecycle
    d. CSI provides guidance on the measurement of processes and services

    Which of the above statements is CORRECT?
    a. 1 and 2 only
    b. 2 only
    c. 1, 2 and 3 only
    d. **All of the above**

18. Which of the following BEST describes a Local Service Desk structure?
    a. A Service Desk that also provides onsite technical support to its users
    b. A Service Desk where analysts only speak one language
    c. A **Service Desk that is situated in the same location as the users it serves**
    d. A Service Desk that could be in any physical location but uses telecommunications and IT systems to make it appear that they are in the same location

19. Which of these is NOT a type of change?
    a. Standard Change
    b. Normal Change
    c. **Urgent Change**
    d. Emergency Change

20. Which of the following are the three main types of metrics as defined in Continual Service Improvement (CSI)?
    a. Process Metrics
    b. Supplier Metrics
    c. Service Metrics
    d. Technology Metrics
    e. Business Metrics
        a. 1, 2 and 3
        b. 2, 4 and 5
        c. <u>1, 3 and 4</u>
        d. **1, 2 and 4**

21. Why should monitoring and measuring be used when trying to improve services?
    a. **To validate, direct, justify and intervene**
    b. To validate, measure, monitor and change
    c. To validate, plan, act and improve
    d. To validate, assign resources, purchase technology and train people

22. What is the RACI model used for?
    a. **Documenting the roles and relationships of stakeholders in a process or activity**
    b. Defining requirements for a new service or process
    c. Analyzing the business impact of an Incident
    d. Creating a Balanced Scorecard showing the overall status of service management

23. What is the CORRECT order of the first four activities in the 7 Step Improvement Process?

a. <u>Define what you should measure, define what you can measure, gather data and process data</u>
b. Gather data, process data, analyze data and present data
c. **What is the vision, where are we now, what do we want to be, how do we get there?**
d. Gather data, process data, define what you should measure and define what
24. Which of the following statements is CORRECT?
a. Only one person can be responsible for an activity
b. Only one person can be accountable for an activity
   a. Both of the above
   b. 1 only
   c. **2 only**
   d. Neither of the above
25. The goal of Service Asset and Configuration Management is to?
a. Account for all the financial assets of the organization
b. **Provide a logical model of the IT Infrastructure, correlating IT services and different IT components needed to deliver the services**
c. Build service models to justify ITIL implementations
d. Implement ITIL across the organization
26. Which is the CORRECT sequence of events in choosing a technology tool?
a. Select; Requirements; Selection Criteria; Evaluate.
b. Selection Criteria; Requirements; Evaluate; Select.
c. Requirements; Selection Criteria; Select; Evaluate.
d. **Requirements; Selection Criteria; Evaluate; Select.**
27. The four stages of the Deming Cycle are?
a. Plan, Measure, Monitor, Report
b. Plan, Check, Re-Act, Implement
c. Plan, Do, Act, Audit
d. **Plan, Do, Check, Act**
28. The BEST definition of an event is?
a. An occurrence where a performance threshold has been exceeded and an agreed Service Level has already been impacted
b. **An occurrence that is significant for the management of the IT Infrastructure or delivery of services**
c. A known system defect that generates multiple Incident reports
d. A planned meeting of customers and IT staff to announce a new service or improvement program
29. Incident Management has a value to the business by?
a. Helping to control infrastructure cost of adding new technology
b. Enabling users to resolve Problems
c. <u>Helping to align people and process for the delivery of service</u>
d. **Contributing to the reduction of impact of service outages**
30. The following options are considered within which process?
a. Big Bang versus Phased
b. Push and Pull
c. Automated versus Manual
   a. Incident Management
   b. **Release and Deployment Management**
   c. Service Asset and Configuration Management
   d. Service Catalog Management
31. Which are the missing Service Operation processes from the following?
a. Incident Management
b. Problem Management
c. Access Management
d. ?
e. ?

- **a. Event Management and Request Fulfillment**
   - b. Event Management and Service Desk
   - c. Facilities Management and Event Management
32. Sources of 'good practice' include which of the following?
   - a. Public frameworks
   - b. Standards
   - c. Proprietary knowledge of Individuals and Organizations
      - a. 1 and 2 only
      - b. 2 and 3 only
      - c. <u>All of the above</u>
      - **d. 1 and 3 only**
33. Which of the following areas would technology help to support during the Service Design phase of the Lifecycle?
   - a. Hardware and Software design
   - b. Environmental design
   - c. Process design
   - d. Data design
      - a. 1, 3 and 4 only
      - b. 1, 2 and 3 only
      - **c. All of the above**
      - d. 2, 3 and 4 only
34. Setting policies and objectives is the primary concern of which of the following elements of the Service Lifecycle?
   - **a. Service Strategy**
   - b. Service Strategy and Continual Service Improvement
   - c. Service Strategy, Service Transition and Service Operation
   - d. Service Strategy, Service Design, Service Transition, Service Operation and Continual Service Improvement
35. The Service Level Manager has responsibility for ensuring that the aims of Service Level Management are met. The Service Level Manager is NOT responsible for?
   - a. Negotiating and agreeing Operational Level Agreements
   - **b. Ensuring that all non-operational service are recorded within the Service Catalog**
   - c. Negotiating and agreeing Service Level Agreement
   - d. Assisting with the production and maintenance of an accurate Service Catalog
36. Which of the following is NOT an objective of Service Operation?
   - **a. Thorough testing to ensure that services are designed to meet business needs**
   - b. To deliver and support IT services
   - c. To manage the technology used to deliver services
   - d. To monitor the performance of technology and processes
37. Which of the following is NOT an example of a Service Request?
   - a. A user calls the Service Desk to order a toner cartridge
   - b. <u>A user calls the Service Desk because they would like to change the functionality of an application</u>
   - c. A Manager submits a request for a new employee to be given access to an application
   - **d. A user logs onto an internal web site to download a licensed copy of software from a list of approved options**
38. Which of the following statements is CORRECT for ALL processes?
   - a. They define activities, roles, responsibilities, functions and metrics
   - **b. They create value for stakeholders**
   - c. They are carried out by a Service Provider in support of a Customer
   - d. They are units of organizations responsible for specific outcomes
39. Which of the following is NOT a step in the Continual Service Improvement (CSI) model?
   - a. What is the vision?

b. Did we get there?
c. **Is there a budget?**
d. Where are we now?
40. Which of the following statements about Supplier Management is INCORRECT?
a. <u>Supplier Management negotiates internal and external agreements to support the delivery of services</u>
b. Supplier Management ensures that suppliers meet business expectations
c. Supplier Management maintains information in a Supplier and Contract Database
d. **Supplier Management should be involved in all stages of the Service Lifecycle, from Strategy through Design and Transition to Operations and Improvement**

4. Examination Results

➡️Open table as spreadsheet Q	A	Syllabus Page ref	Rationale
1	C	04-06 ST 92	"Figure 4.21 Service V-model to represent configuration levels and testing"
2	C	06-02 SO 121- 122	a) and d) are from the bulleted list in SO 6.3.2 b) is a summary of the central paragraphs of 6.3.1 c) is the responsibility of Service Level Management
3	A	03-27 SO 50	"Prioritization can normally be determined by taking into Account both the urgency of the incident (how quickly the business needs a resolution) and the level of impact it is causing"
4	C	05-05 ST 60	"Emergency change authorization… Where CAB approval is required, this will be provided by the Emergency CAB (ECAB)"
5	A	07-01 CSI 134	"The Service Owner is responsible for continual improvement…"
6	B	06-02 SO 126	"Operations Control, which oversees the execution and monitoring of the operational activities…"
7	A	05-02 SS 131	This relationship is described in SS 5.5.3, "Business Activities drive demand for services…"
8	D	04-10 CSI 30	"…establish baselines as markers or starting points for later comparison…"

Open table as spreadsheet Q	A	Syllabus Page ref	Rationale
9	C	05-07 SO 46	Under the heading "4.2.1 Purpose/goal/objective" it says "'Normal Service Operation' is defined here as service operation within SLA limits."
10	A	05-08 SO 36	SO 4.1.1 states the Purpose/goal/objective of Event Management as "The ability to detect events, make sense of them and determine the appropriate control action"
11	D	05-04 SD 97	The primary 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"
12	D	04-04 SD 30	The first entry in the bulleted list under "3.6 Design Aspects" says "Service solutions, including all of the functional requirements…"
13	C	01-06 SS 26	This is the bulleted list from SS 2.6.2 "Processes have the following characteristics:"
14	A	02-02	Titles of the core books can be found in many places, and do not include Service Optimization (should be Continual Service Improvement)
15	A	04-05 SD 51	Table 3-1, last row "Knowledge Outsourcing (KPO) - The newest form of outsourcing"
16	A	04-04 SD 34	This is illustrated in "Figure 3.7 The Service Portfolio and its contents"
17	D	02-10 CSI 14	This is a summary of the first paragraph of CSI 2.4.1
18	C	06-01 SO 111	"This is where a desk is co-located within or physically close to the user community it serves"
19	C	05-05 ST 48	"4.2.4.5 Standard changes (pre-authorized)" ST 50 "4.2.6.1 Normal Change Procedure", and many other references to "normal changes" ST 60 "4.2.6.9 Emergency Changes" The term urgent change does not appear in the book
20	C	04-10 CSI 45	"The three types of metric are…" is followed by three bullets, starting "Technology Metrics -", "Process Metrics -", "Service Metrics -"
21	A	04-10 CSI 30	This is the bulleted list under heading "3.7.1 Value to business"
22	A	07-02 CSI 137	"…often used within organizations indicating roles and responsibilities in relation to processes and activities"

Open table as spreadsheet Q	A	Syllabus Page ref	Rationale
23	A	05-09 CSI 32	The correct sequence is shown in "Figure 3.4 The 7-Step Improvement Process"
24	C	07-02 CSI 137	"…there is only one person accountable for an activity, although several people may be responsible for executing parts of the activity"
25	B	05-06 ST 66	"Configuration Management delivers a model of the services, assets and the infrastructure by recording the relationships between configuration items as shown in Figure 4.7"
26	D	08-01 SD 205	The correct order is shown in "Figure 7.1 Service Management tool evaluation process"
27	D	04-08 CSI 29	"The four key stages of the cycle are Plan, Do, Check and Act,"
28	B	03-24 SO 35	"An event can be defined as any … occurrence that has significance for the management of the IT Infrastructure or the delivery of IT service"
29	D	05-07 SO 46	The primary goal of the Incident Management process Includes "… and minimize the adverse impact on business operations"
30	B	05-06 ST 86-87	The list is the sub-headings of ST 4.4.4.2
31	A	05-08 SO 45	Each of these processes is clearly called out in the syllabus, in sections 05-07 and 05-08
32	C	01-01 SS 7	First paragraph on the page says "There are several sources for good practices including public frameworks, standards, and the proprietary knowledge of organizations and individuals"
33	C	08-02 SD 201	This is the bulleted list just under heading 7.1
34	A	05-05 SS 8	"Guidance is provided on …developing service management policies" and "Organizations use the guidance to set objectives"
35	B	05-03 SD 194	A, C and D are in the bulleted list under the heading "6.4.6 Service Level Manager". The Service Catalog Manager is responsible for ensuring that "all operational services … are recorded within the service catalog". There is no requirement to record nonoperational services in the service catalog.
36	A	02-08 SO 13	b) c) and d) are a summary of the two paragraphs in SO 2.4.1 a) is part of Service Transition

Open table as spreadsheet Q	A	Syllabus Page ref	Rationale
37	B	03-28 SO 55 - 56	"…their scale and frequent, low-risk nature means that they are better handled by a separate process". A change to an application is not normally frequent, small scale, and low risk. All the other examples are common types of Service Request. Answer D may look correct, but SO section 4.3.5.1 specifically says that Service Requests can use automatic fulfillment from web based menus.
38	B	01-04 SS 19	"A process … creates value for an external customer or stakeholder"
39	C	04-09 CSI 15	The correct steps are shown in "Figure 2.3 Continual Service Improvement model"
40	A	05-04 SD 312	Definition of a Supplier is "…A Third Party responsible for supplying goods or Services…". An internal organization is not third Party