“The purpose of the ITIL Foundation certificate in IT Service Management is to certify that the candidate has gained knowledge of the ITIL terminology, structure and basic concepts and has comprehended the core principles of ITIL practices for Service Management.”

- The ITIL Foundation Certificate in IT Service Management Syllabus v5.4
ITIL Foundation Course Outline

- Introduction and Background
- ITIL Qualification Scheme
- Service Management as a Practice
- The Service Lifecycle
  - General ITIL Concepts and Definitions
  - Key Principles and Models
  - Processes, Functions and Roles
- Technology and Architecture
- Passing the Exam
Targeted Course Schedule

- **Module 1: Introduction to Service Management and the Service Lifecycle**
  - Time to cover section topics, discussion and review (including sample exam questions): 3 hours

- **Module 2: Service Strategy and Related Concepts**
  - Time: 3 hours

- **Module 3: Service Design and Related Concepts**
  - Time: 3 hours

- **Module 4: Service Transition and Related Concepts**
  - Time: 3 hours

- **Module 5: Service Operation and Related Concepts**
  - Time: 2 hours

- **Module 6: CSI and Related Concepts, including Exam Tips and Review**
  - Time: 2 hours

- Course Evaluations and Final Preparation Time for Exam: 30 minutes
- Exam: 60 minutes
Passing the Exam

Based on pre-class reading material, you may be able to answer the following questions already:

1. To enable a new Service Desk management tool to be implemented, the capacity of some servers has to be extended. Who is responsible for managing the request for additional capacity?
   a) Service Level Manager
   b) Capacity Manager
   c) Change Manager
   d) Financial Manager
2. Which of the following is not necessarily a direct benefit of implementing a formal Incident Management process?

a) Improved user satisfaction
b) Incident volume reduction
c) Elimination of lost incidents
d) Less disruption to both IT support staff and users
3. Possible problems with Change Management include:

a) Lack of ownership of impacted services
b) Increased visibility and communication of changes
c) Better alignment of IT services to actual business needs
d) The ability to absorb a larger volume of changes
4. At what point does an Incident turn into a Problem?
   a) When it is urgent
   b) When it is a Major Incident
   c) If the person reporting the incident is a senior-level manager or executive
   d) Never
5. Consider the following:

1) Incident Diagnostic Scripts
2) A knowledge base of previous recorded incidents
3) A configuration management database covering infrastructure supported
4) A Forward Schedule of Changes

Which of the above should be available to the Service Desk?

a) 1, 2 & 3
b) 1 & 2 only
c) 3 & 4 only
d) All four
IT Infrastructure Library® (ITIL)

- First version was developed over 20 years ago
- Version 2 focused on alignment of IT services with Business and was published in 2000 (Process Focused)
- Version 3 focused on Business Integration and was published in 2007 (Lifecycle Focus)
- 2011 Update included major updates to Service Strategy as well as minor enhancements for consistency and new/changed processes, roles, etc.
- Owned by the Office of Government Commerce (OGC) – UK
- “Consistent and comprehensive documentation of best practice for IT Service Management... giving guidance on the provision of quality IT services, and on the accommodation and environmental facilities needed to support IT.”

IT Infrastructure Library® is a registered trade mark of the Cabinet Office.
ITIL provides a systematic and professional approach to the management of IT service provision. Adopting its guidance offers users a huge range of benefits that include:

- Improved IT services through the use of proven best practice processes
- Improved use of skills and experience
- Improved customer satisfaction through a more professional approach to service delivery
- Improved productivity
- Improved delivery of third party services
- Reduced costs
- Standards and guidance
ITIL Qualification Scheme

ITIL Master

ITIL Expert

Managing Across the Lifecycle

Lifecycle modules:
- SSM
- SD
- ST
- SO
- CSI

Capability modules:
- ITSM
- PPQ
- RCV
- SOA

ITIL v3 Foundation for Service Management

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Service Strategy

- **Objectives**
  - Transform Service Management into a strategic asset
  - Focuses on the strategic integration of IT with the business
  - Defines standards & policies that will be used to design IT services
  - Define the values and objectives of the IT services to be designed

- **Business Value**
  - Market focus and position
  - Distinctive Capabilities
Service Design

- **Objectives**
  - Focuses on the design of effective services, aligned to business needs (and how those services will be deployed and utilized)
  - Creating services to satisfy business objectives
  - Efficient and effective processes
  - Identify and manage risks

- **Business Value**
  - Balancing act of functionality, resources and schedule
Objectives

- Focuses on the evolution or change of services as they are transitioned into the production environment
- Plan and manage resources to establish new or changed service successfully, while balancing cost, quality & time estimate considerations
- Ensure measurable impact is kept to a minimum

Business Value

- Align new or changed services with customer’s requirements
- Improve ability to handle a high volume of changes
Service Operation

- Objectives
  - Provides best practice advice and guidance on all aspects of day-to-day running of IT services
  - Maintains stability
  - Focus on effectiveness and efficiency in delivery & support
  - Coordinates and executes all the activities and processes required to deliver and manage service at agreed levels to business users and customers

- Business Value
  - Execution of the services
  - Realization of the actual value of the services
Continual Service Improvement

Objectives

- Focuses on creating and maintaining value for customers through better design, transition and operation of services
- Plan, Do, Check, Act
- Focuses on overall health of Service Management, continually aligning and realigning the portfolio of IT services with the current and future business needs

Business Value

- Improvements by comparing baselines, benchmarks & “before” and “after”
- Use of effective measurements to help determine improvements, benefits, ROI & VOI
Review: What is ITIL?

- ITIL stands for Information Technology Infrastructure Library
- ITIL is a descriptive “what” and “why” approach to IT management
- Developed by the British Government and spread throughout Europe
- The de facto global framework for managing IT services
- Focused on aligning IT services with business requirements and customer needs
Review: What ITIL is not...

- A process model or a standard; it is a set of best practices

- A strict set of rules; it is a framework

- A how-to manual; implementation of ITIL processes varies according to your ‘pain points’ and organization’s business objectives

- A packaged solution; its introduction must be backed by company culture change management
Why are ITIL & ITSM needed?

- Inefficient service management is very costly

- Best Practice ITSM gives clients the capability to deliver high quality, responsive and cost effective IT services to their customers

- Provide a process-driven, service-focused approach, based on best practices and proven experience

- Provide necessary focus on measurable outcomes and benefits
Seven characteristics of ITIL Success

1. Managers in leadership positions could describe ITIL
2. Attitude, behavior and culture
3. Top management involvement and support
   - Organizational changes
   - Changes to a service attitude
   - Investment in tools and best practice model
4. Clear business objectives for IT investment
   - Service strategy/design pays off
5. More differentiated organization
6. Fewer renegade changes
7. Fewer changes in governance
Reasons ITIL efforts have failed

- Positioned as the “ultimate solution” to fix all problems of the company
- Only discussed in IT terms – missing the connection to the business
- No goal determined before
  - Don’t know when we have reached the goal
- Implemented one time as a “project” – no continuation
- Only invested in training but not really in process adoption, organizational changes and technology
Good and Best Practices

- Learning and adapting in dynamic and competitive environments
- Pressure on service providers to maintain a competitive advantage
- To cope with pressure, organizations benchmark themselves against peers and seek to close gaps in capabilities
- One way to close gaps is the adoption of good practices in wide industry use
Good and Best Practices

- Publicly available frameworks (ITIL, COBIT, CMMI, PRINCE, ISO 9000, ISO 20000, etc.)

- Organizations should integrate guidance from multiple frameworks and standards, building on their tacit, proprietary knowledge and making coordination and collaboration across organizations easier because of shared practices and standards.

✓ Many sources of “good practice” → ITIL, Academic Research, Industry practices (often in-house), Standards
# Good Practices

## Good Practices, Public Standards and Frameworks

- Wide Community Distribution
- Public Training and Certification
- Valid in different applications
- Peer reviewed
- Used by different parties
- Free and publicly available
- Labor market skills easy to find

## Proprietary Knowledge

- Difficult to adopt
- Difficult to replicate and transfer
- Hard to document
- Highly customized
- Specific to business needs
- Hard to adapt or reuse
- Owners expect compensation
Service Management as a practice

- ITIL definition of service: “A means of delivering value to a customer by facilitating outcomes that they want to achieve without the ownership of specific costs and risks.”
Utility and Warranty

- From customer’s perspective, value = utility + warranty
  - Utility = “fitness for purpose”
  - Warranty = “fitness for use”

✓ *This will be on the exam!*

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Origins of service management in traditional service businesses – airlines, banks, hotels

Practice has grown within IT via adoption of service-oriented approach to managing IT applications, infrastructure and processes

Solutions to business problems and support for business models, strategies and operations → increasingly in the form of services

Popularity of shared services & outsourcing increases number of organizations (external & internal) who are “service providers”

Strengthens the practice of service management, but also imposes greater challenges on it
“A set of specialized organizational capabilities for providing value to customers in the form of a service.”

Capabilities take the form of

- Functions
- Processes

- Manage services across the lifecycle and represent the organization’s capacity, competency and confidence for action
- Are shaped by challenges (demand, management, resources, market conditions)
ITIL Definition of Service: “A means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs or risks.”

✓ Service Owner

- Is accountable for the delivery of a specific IT Service
- Is responsible for continual improvement and management of change affecting Services under their care
- Example: the owner of the Payroll Service
“A logical concept referring to people & automated measures that execute a defined process, an activity or a combination thereof.”

Self-contained with required capabilities and resources necessary for their performance and outcomes

Functions have their own body of knowledge, which accumulates from experience

Most common ITIL Function example is a Service Desk
Others include Technical Management, IT Operations, Application Management
In larger organizations, a function may be broken up and performed by several departments, teams and groups, or it may be embodied within a single organizational unit.
Role

- “A set of connected behaviors or actions that are performed by a person, team or group in a specific context.”

- Group, Team, Unit or person performing tasks connected to a relevant process

- Scope of role & trigger is defined by relevant process, agreed by management
The RACI Model

- **Responsible** = the role that executes the process and activities
- **Accountable** = the role that owns the quality and end result of the process
- **Consulted** = the role that provides information and knowledge
- **Informed** = the role that receives information about process execution and quality

Rules for each activity:
- Only one role is accountable for an activity
- One or more roles will be responsible for each activity
- Roles are consulted and informed as required
- Roles may have multiple involvement for an activity (for example: A/R, R/I or R/C)
## Sample RACI Model
### Incident Management

<table>
<thead>
<tr>
<th>Process Roles Activities within process</th>
<th>Incident Process Owner</th>
<th>Incident Manager</th>
<th>Service Desk Analyst</th>
<th>Data Center</th>
<th>‘n’ Level Support Group</th>
<th>Customer / User</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident Detection and Recording</td>
<td>A</td>
<td>C, I</td>
<td>R, I</td>
<td>R</td>
<td>I</td>
<td>R, C</td>
</tr>
<tr>
<td>Classification and Initial Support</td>
<td>A</td>
<td>C, I</td>
<td>R</td>
<td>R</td>
<td>C, I</td>
<td>C, I</td>
</tr>
<tr>
<td>Investigation and Diagnosis</td>
<td>A</td>
<td>C</td>
<td>R</td>
<td>C</td>
<td>R, C</td>
<td>C, I</td>
</tr>
<tr>
<td>Incident Closure</td>
<td>A</td>
<td>C, I</td>
<td>R</td>
<td>R</td>
<td>C, I</td>
<td>C, I</td>
</tr>
<tr>
<td>Monitoring</td>
<td>A</td>
<td>I</td>
<td>R</td>
<td>C, I</td>
<td>C, I</td>
<td>C, I</td>
</tr>
</tbody>
</table>
Process Definition

✓ “A set of coordinated activities combining & implementing resources and capabilities in order to produce an outcome, which directly or indirectly, creates value for the external customer or stakeholder.”

- Structured activity set to accomplish a specific objective
- Turns one or more inputs into defined outputs
- Roles, responsibilities, tools & management controls
- Policies, standards, guidelines, activities, processes, procedures & work instructions
Process – Closed Loop System

- Processes are examples of closed-loop systems
- They provide change and transformation towards a goal, utilizing feedback for self-reinforcing and self-corrective action.

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Often described using procedures and work instructions

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Process Definitions

- Process definitions describe actions, dependencies, and sequence. Process characteristics:
  - They are measurable
  - They deliver specific results
  - They deliver outcomes to customers or stakeholders
  - They respond to specific events (triggers)
Process Owners

✓ A Process Owner is responsible for improvements and ensuring that the process is fit for the desired process. They are accountable for the outputs of that process.

Example: the owner of the Problem Management Process

The process owner and service owner are accountable for the process or service under their care. However, they may not be responsible for performing many of the actual activities required for the process or service.
Additional Process Roles/Responsibilities

- **Process Manager:**
  A role responsible for the operational management of a process. The process manager’s responsibilities include planning and coordination of all activities required to carry out, monitor and report on the process.

  There may be several process managers for one process – for example, regional change managers or IT service continuity managers for each data center. The process manager role is often assigned to the person who carries out the process owner role, but the two roles may be separate in larger organizations.

- **Process Practitioner:**
  The process practitioner is the role that carries out one or many of the process activities. Basically, these people are the ones who do the work. However, it’s important that they have a clear list of responsibilities related to the process that they get involved in.
Process Model

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Service Lifecycle
Transforming Strategy into Desired Output

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Review Questions

1. The five core books in ITIL are:
   - ______, ______, ______, ______ and ______

2. 4 Sources of “good practices” include
   - ______, ______, ______ and ______

3. Service Design is most concerned with
   - How service is deployed
   - How service is delivered
   - Both
   - Neither

4. Continual Service Improvement occurs during all phases of the Service Lifecycle except Service Strategy
   - True
   - False
1. Defining the value and objectives of IT Services 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

2. Functions are best described as:
   a) Self-contained units of organization
   b) Inter-related activities with a defined goal or output
   c) Closed-loop control systems
   d) A team of IT staff who provide a single point of contact for all user communication
Review Questions

1. Service Management is best described as?
   a) A technically focused set of management practices for IT service delivery
   b) A set of specialized organizational capabilities for providing value to customers in the form of services
   c) The processes required to deliver and support services
   d) The processes that enable efficient IT service delivery and support

2. ITIL can be best described as:
   a) Repeatable and adaptable ITSM processes
   b) An international standard for ITSM
   c) A holistic, Service Lifecycle approach to ITSM based on international best practices
   d) The best way for an organization to improve its IT service delivery and support
Service Strategy
ITIL Lifecycle Key Concepts

- Purpose of introduction at start of service lifecycle
  - Help define much of the key terminology
  - Explain the key concepts of Service Management

- Terminology and concepts come from all sections of the Service Lifecycle
  - As with the processes themselves, many of the key concepts are defined within one specific lifecycle publication but have value and meaning throughout many (or all) lifecycle steps
Service Strategy - Objectives

- Provide superior service to competing alternatives

- Provide a high-level focus for Service Management within the organization
  - Develop Service Management as a Strategic Asset
  - Value Creation through Services
  - To establish relationships between services, systems or processes & business models, objectives or strategies they support.
  - Provides strategic management focus in respect of IT Service Management through:
    - Strategic analysis
    - Planning & Positioning

✓ Provides underpinning principles to assist in developing
  - Policies
  - Guidelines
  - Processes
Service Strategy - Goal

Goal

- To improve strategic impact through design, development, implementation and practice of service management:
  - As an organizational capability
  - As a strategic asset

- Enable Managers to cope with demands & tune IT Strategies

- Main Activities:
  - Define the market
  - Develop the offerings
  - Develop strategic assets
  - Prepare for execution
Building blocks for a successful service strategy

Market focus and position:
- Market Space – a set of outcomes that customers desire that can be supported through one or more services
- The “where” and “how” to compete aspects of a strategy

Distinctive Capabilities:
- What can you offer?
- How can you create and exploit a set of hard-to-replicate capabilities that deliver promised customer outcomes efficiently?

Performance:
- Can you be or are you already better than your competitors?
- Focus is on creating cultural and organizational characteristics that will lead towards goal of outperforming competing alternatives.
Forming a Service Strategy

- Strategic assessment
  - Analyse external factors
  - Establish objectives
  - Analyse internal factors

- Strategy generation, evaluation and selection
  - Determine perspective
  - Form a position
  - Craft a plan
  - Adopt patterns of action

- Measurement and evaluation
- Service Strategy
  - Service Portfolio
  - Service Design requirements
  - Service Transition requirements
  - Service Operation requirements

- Continual Service Improvement

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As part of the service strategy, answer the questions “Where are we going to get the resources?” and “How are we going to organize?”

- **Type 1: Internal Service Provider**
  - Typically business functions embedded in the business units they serve

- **Type 2: Shared Service Unit**
  - Finance, IT, HR, logistics – not at the core of the organization
  - Consolidated into a shared service unit

- **Type 3: External Service Provider**
  - Customers may provide sourcing from external suppliers (Network, ISP, Hardware Support, etc.)

This will be on the exam in some form!
Supplier

- A third party responsible for supplying goods or services that are required to deliver IT services.

- Examples of suppliers include
  - commodity hardware and software vendors
  - network and telecom providers
  - outsourcing organizations

- Supply Chain: The activities in a value chain carried out by suppliers. A supply chain typically involves multiple suppliers, each adding value to the product or service.

- Value Network: A complex set of relationships between two or more groups or organizations. Value is generated through exchange of knowledge, information, goods or services.
Resources and Capabilities

- Resources and capabilities are types of assets

- Resources:
  - Direct inputs for production
  - Easier to acquire than capabilities

- Capabilities:
  - Capability represents:
    - Coordination
    - Control
    - Deployment of resources to produce value
  - Capabilities cannot produce value without adequate & appropriate resources
Developing distinctive capabilities to retain customers

- Similar resources but different capabilities could = competitive advantage

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Financial Capital</td>
</tr>
<tr>
<td>Organization</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>Processes</td>
<td>Applications</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Information</td>
</tr>
<tr>
<td>People</td>
<td>People</td>
</tr>
</tbody>
</table>
Contains accurate information for all services

- Highlights status of service (all stages of lifecycle)
- 3 phases of service are include:
  - Service Pipeline
  - Service Catalog
  - Retired Services

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Business Case

- Essentially a justification for a significant item of expenditure

- Includes information about:
  - Costs
  - Benefits
  - Options
  - Issues
  - Risks
  - Possible Problems

- A means to identify business imperatives that depend on service management

- Model of what a service is expected to achieve

- Provide data & evidence to justifying reasons for:
  - Improving service or process
  - Pursuing a course of action
Definition within ITIL:

- Uncertainty of outcome:
  - Positive opportunity or negative threat
  - Often referenced with probability

- Risk management should:
  - Be visible, repeatable and consistent
  - Use a framework & well-defined steps
  - Support the decision-making process

- Two phases of risk management include:
  - Analysis
  - Management

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Creating Value Through Services

- **Service Model**
  - Describes the structure and dynamics of a service
  - Is the blueprint for Service Management processes and functions to communicate and collaborate on value creation
  - Describes how service and customer assets interact and create value for a given portfolio of services
Value Creation

✓ Customer perceptions & business outcomes define value
  o Value is created by managing perceptions and services

  o Perceptions are influenced by:
    ❖ Attributes of a service
    ❖ Customer’s expectations

  o Service Providers should:
    ❖ Add value
    ❖ Influence perceptions
    ❖ Respond to preferences

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What is our business?
Who is our customer?
What does the customer value?
Who depends on the service?
How do they use our service?
Why is the service valuable to them?

Value can be added at different levels – what matters is the net difference. For example, service providers differentiate themselves from equipment vendors purely through added value even while using the equipment from those same vendors as assets. (Focus shifts from attributes to the fulfillment of outcomes.)
A Business Unit is a bundle of assets meant to create value for customers in the form of goods and services.
Service Units, like Business Units, are a bundle of service assets that specializes in creating value in the form of services.

Services define the relationship between business units and service units.

In many instances, business units (customers) and service units may be part of the same organization. In other instances units are separate legal entities.

Customers and service providers are usually part of a larger value chain or value network. Customers have their own customers to serve, and service providers are in turn served by their service providers.
Four Steps to Create Service Strategy

- Define the market
  - Understand the customer and the opportunities
  - Visualize the services
  - Gain insight into the business

- Develop the offerings
  - Define the market space, the service outcome, and the service portfolio

- Develop the strategic assets
  - Increase the service and performance potential
  - Understand demand, capacity and cost

- Prepare for execution
  - Explore business potential and strategic assessment
  - Set objectives and define critical success factors
  - Prioritize the investments
Develop the Strategic Assets

- Service Management as a strategic asset

- Value to the Business increases when IT goes beyond providing technical resources, infrastructure and applications
Service Strategy Processes

- Service Portfolio Management
- Demand Management
- Financial Management
- Business Relationship Management
“Service Portfolio Management is a dynamic method for governing investments in service management across the enterprise and managing them for value.”

Objectives
- Apply comparable practices to manage service portfolios
- Maximize value while managing risks and costs

Value
- Demonstrate value through ability to anticipate change
- Maintain traceability to strategy and planning
Service Portfolio

- DEFINE all existing and planned services
- ANALYZE the business needs and the services required to meet those needs
- APPROVE new or changed services
- CHARTER services into operation (and add them to the Service Catalog)
Benefits of Service Portfolio Management

- Improved integration of IT and business functions
- Objective foundation for value-based IT investment and budgeting decisions
- Ongoing alignment of user expectations and delivered services
- Clear alignment of technical assets with the delivery of value-based services
- Greater improvement potential for additional investments in processes and tools
Demand Management

- Demand Management ensures that capacity will be there when needed
- Consumption balanced by off-peak pricing, volume discounts, and differentiated service levels

Consumption “produces” demand and production “consumes” demand

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Financial Management provides stewardship of the assets underlying the IT infrastructure.

Financial Management provides information to enhance decision-making. It should enable the monetary quantification of:
- The IT Services
- The assets
- Operational Forecasting

Key concepts include:
- Accounting
- Compliance
- Service pricing and value
- Planning
- Service investment analysis
- Understanding service cost dynamics
  - Variables that impact service costs
  - How these variables might change
Benefits of Financial Management

- Increased confidence in setting and managing budgets – ability to estimate IT running costs
- More efficient use of IT resources
- Higher customer satisfaction (they know what they pay for)
- Investment decisions can be made based on accurate information
- Reduced risk of overspending
- Availability of IT Service costs and expenses (knowledge of direct and indirect costs)
- Ability to recover IT costs in a fair manner (Chargeback models, cost centers, notional or real charging)
- Method of balancing service quality and quantity customer needs
Introduced to the Service Strategy volume in 2011, the purposes of this process include:

- Establishing and maintaining the relationship between the service provider and the customer
- Identifying customer needs and ensuring that the service provider is able to meet those needs

Objective: Business Relationship Management aims to maintain a positive relationship with customers.

- BRM identifies the needs of existing and potential customers and ensures that appropriate services are developed to meet those needs.
Business Relationship Management

Business Relationship Manager (Process Owner)

- The Business Relationship Manager is responsible for maintaining a positive relationship with customers, identifying customer needs and ensuring that the service provider is able to meet these needs with an appropriate catalogue of services. The Business Relationship Manager works closely with the Service Level Manager.

Customer

- Someone who buys IT services. The Customer of an IT service provider is the person or group who defines and agrees to the service level targets.
Service Strategy Review

- Service Strategy’s objective is to design, develop and implement Service Management as a strategic asset, while assisting growth of the organization.

- Use of restaurant analogy to discuss:
  - Developing a new service
  - Creating service value
  - Identifying a business case
  - Measuring customers’ perceptions of value

- Key Processes within the Strategy portion of the service lifecycle:
  - Service Portfolio Management
  - Demand Management
  - Financial Management
Service Strategy Review

1. A ___________ is a means of delivering __________ to customers by facilitating __________ customers want without the ownership of specific __________ and __________.

2. __________ _______________ is a set of specialized organizational activities for providing value to customers in the form of services.

3. A _________ _________ codifies the structure and dynamics of services.

4. A _________ _________ is a bundle of assets meant to create value for customers in the form of goods and services.

5. The four steps involved in the creation of Service Strategy are:
   1. Define the __________
   2. Develop the __________
   3. Develop the _________ _________
   4. Prepare for __________
1. Which of the following are Service Portfolio components?
   1. Service Pipeline
   2. Configuration Management System
   3. Retired Services
   4. Service Catalog

   a) 1 and 4 only
   b) 1, 3 and 4 only
   c) 3 and 4 only
   d) All of the above

2. “Warranty of a service” means which of the following?
   a) The service is fit for purpose
   b) Customers are assured of certain levels of availability, capacity, continuity and security
   c) The service has been tested appropriately with no errors found
   d) All customers are given free support for the service for a stated period of time
1. Demand Management is primarily used to:
   a) Align business with IT needs
   b) Increase customer perception
   c) Increase the value of IT Services
   d) Eliminate excess capacity needs

2. Which of the following questions is NOT answered by Service Portfolio Management?
   a) How should our resources and capabilities be allocated?
   b) What are the support procedures for this service?
   c) Why should a customer buy these services?
   d) What are the pricing or chargeback models?

3. Which information does the “Financial Management” process deliver to Service Level Management?
   a) The cost of hiring new IT staff
   b) The costs of the Financial Management system
   c) How much has been spent on IT Services per client
   d) The total costs of Application Management
Service Strategy Review Questions

1. The activity that aims to identify the potential damage or loss to an organization resulting from disruption to critical business processes is:
   a) Root Cause Analysis
   b) Business Impact Analysis
   c) Service Outage Analysis
   d) Component Failure Impact Analysis

2. How do organizations use Resources and Capabilities in creating value?
   a) They are used to create value in the form of network availability
   b) They are used to create value in the form of goods and services
   c) They are used to create value to the IT organization for Service Design
   d) They are used to create value to the IT organization for Service Transition

3. An unabsorbed cost is best described as:
   a) A capital cost
   b) A type of charging policy
   c) An uplift to allocated costs
   d) A revenue stream
Service Design
From ITIL: “The design of appropriate & innovative IT services, including their architectures, processes, policies & documentation, to meet current and future agreed business requirements.”

Objectives:

- Provide guidance on the design and development of services, service management processes, and design capabilities
- Design of new and changed services
- Adopt a holistic approach
  - Provide end-to-end business-related functionality & quality
  - Identify and manage risks in services that are going live
  - Ensure consistency & integration, within all activities & processes
  - Assist with policy development
  - Consider impact to overall service, Service Portfolio & Catalog, technology, Service Management processes, and appropriate measurements & metrics
# Service Design

## Goals
- Satisfy business objectives
- Easy and efficient to develop
- Efficient and effective processes
- Minimize risks
- Secure and resilient
- Measures to assess design process

## Value to the Business
- Reduced Total Cost of Ownership (TCO)
- Improved consistency of service
- Improved quality of service
- Easier implementation of new and changed services
- Improved IT governance
- More effective Service Management and IT processes
5 Aspects of Service Design

- **New or Changed Services**
  - Often referred to as “Business Requirements” as well when listed as first of five individual aspects of Service Design
  - Includes services designed to meet organizational, not technological needs

- **Service Management systems and tools**
  - Specifically the Service Portfolio (including the Service Catalog)

- **Technology architecture and management systems**
  - Consider the architectures and tools needed to deliver the service
  - Aims to produce integrated, business-driven technology management

- **The processes required**
  - Developing the processes needed to design, transition, operate and continually improve the services
  - Takes one or more inputs and turns them into outputs

- **Measurement methods and metrics**
  - Measurement will impact behavior
  - Only metrics that encourage movement toward business objectives should be used
Four types of PROCESS metrics:

- **Progress metrics:**
  - milestones and deliverables in the capability of the process

- **Compliance metrics:**
  - compliance of the process to governance requirements, regulatory requirements and compliance of the people to the use of the process

- **Effectiveness metrics:**
  - the accuracy and correctness of the process and its ability to deliver the ‘right result’

- **Efficiency metrics:**
  - the productivity of the process, its speed, throughput and resource utilization
Service Design – the Big Picture

This is the process followed to develop the Service Design Package. Don’t confuse it with the 5 aspects of Service Design.
Results of Service Design efforts

Handoff to Service Transition occurs via the SDP
The 4 P’s of Service Design

✓ “The implementation of ITIL Service Management as a practice is about preparing and planning the effective and efficient use of the four P’s: the People, the Processes, the Products (services, technology and tools) and the Partners (suppliers, manufacturers and vendors).”

❑ Without the integration and close relationship between the four P’s → designs, plans and projects normally fail because of the lack of preparation and management.
‘Design is the art of gradually applying constraints until only one solution remains.’

Solution space or the set of designs that are allowed with the given set of constraints.

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Service Design Processes

- Service Level Management
- Service Catalog Management
- Capacity Management
- Availability Management
- Service Continuity Management
- Information Security Management
- Supplier Management
Service Level Management (SLM) is the process of ensuring that an agreed level of IT service is provided for all current IT services and that future services are produced and delivered to agreed, realistic targets.

Key activities:
- Negotiate, document, agree, monitor and review services
- Manage business and customer relationships
- Ensure targets are developed for all services
- Manage customer expectations regarding Service Delivery

Objectives:
- Improve customer satisfaction
- Ensure proactive activities occur that enhance level of services
- Ensure clear understanding between customer and IT
SLM Relationships to other SD Processes

Service Catalog Management
*What services are being offered to the customers?*

Availability Management
*Are the services there when we need them?*

Supplier Management
*Are suppliers meeting the terms of their contracts?*

Information Security Management
*Are we protecting our IT assets?*

Capacity Management
*How much IT infrastructure do we need?*

IT Service Continuity Management
*How fast can we get back to business?*
Service Design Workshop

For the service example provided, define at least one SLR.

Availability Management
Describe an availability issue for the service.

Capacity Management
What infrastructure is needed for this service?

Information Security Management
Describe a security issue related to the service.

IT Service Continuity Management
Describe a business or IT Service continuity concern related to this service.

Supplier Management
Are there any sourcing or supplier issues related to service?

Service Catalog Management
How would you describe the service in the Service Catalog?
SLM - Definitions

- **Service Level Agreement (SLA)**
  - A written agreement between an IT service provider and a customer, using business language rather than technical terms
  - Defines key service targets and the responsibilities of both parties

- **Operational Level Agreement (OLA)**
  - A written agreement between an IT service provider and another part of the same organization.

- **Contract (Underpinning Contract = UPC)**
  - A legally binding agreement between two or more parties.

- **Service Level Requirements (SLRs)**
  - Detailed documentation of the customer’s needs, forming the basis for design criteria for a new or modified service.

- **SLAM Chart**
  - A Service Level Agreement Monitoring (SLAM) Chart is used to help monitor and report achievements against service level targets.
SLM with SLAs, OLAs, and UPCs
Recall BRM/SLM relationship from Service Strategy discussion

Key Metrics:
- SLA Targets Missed (%)
- SLA Targets Threatened (%)
- Customer perception of SLA Achievements
Challenges for Effective SLM

- Agreeing on and verifying targets before committing to them
- Engaging with business to become a service provider to them
- Overcoming customer perceptions and expectations may be difficult
- Identifying internal service portfolios and defining the service catalogs
- Ensuring that SLAs are supported by OLAs and UPCs
- Overcoming resistance to change
- Defining IT departmental relationships and identifying contractual relationships
SLAs may exist for a group of services provided to a particular customer or may be written for a service, regardless of what customer receives the service:

- It may be challenging to write a service-based SLA and still cover the variations that may exist in the delivery of that service to multiple customers. Sometimes a Gold/Silver/Bronze structure of service levels may exist for a Service-Based SLA.
Multi-level Service Level Agreements

✓ SLAs may exist at multiple levels within an organization:
  
  o Some organizations choose to adopt a multi-level SLA structure. A common three layer structure includes **Corporate Level** SLAs covering all the generic SLM issues appropriate to every customer throughout the organization.

  o **Customer or Business Unit Level**
    SLAs cover all SLM issues relevant to the particular customer group or business unit, regardless of the service being used.

  o **Service Specific Level** SLAs cover all SLM issues relevant to the specific service, in relation to a specific customer group (one for each service covered by the SLA).
Service Review and SIPs

- Periodic review meetings are required to:
  - Discuss with customers (or their representatives) - service achievements, breaches
  - Preview any issues for the upcoming period
  - Place actions on customer and/or service provider to improve weak areas where targets are not being met

- Service Review meetings lead to Service Improvement Plans
  - Monitoring of Service Performance → Production of Service Reports → Service Review → Service Improvement → SLA Improvement
Service Catalog Management (SCM) is the process of producing and maintaining accurate information on all operational services, and those being prepared to run operationally.

Key Activities:
- Agreeing and documenting service definitions with all relevant parties
- Interfacing with Service Portfolio Management
- Producing and maintaining the catalog
- Interfacing with the business, Service Continuity Management, support teams and suppliers

Remember the Business Service Catalog and Technical Service Catalog components
Service Catalog

- Subset of Service Portfolio
  - Includes presently active and approved services
  - Projection of actual and present capabilities
    - Helpful when developing solutions using one or more services
    - Cost, risk & resources
  - Acquisition portal for customers
  - Communicates and defines policies, guidelines & accountability
  - Possible one-to-many relationship between SP/SC

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Business & Technical Service Catalogs

- **Business Service Catalog**
  - This is the customer view of the Service Catalog
  - Contains all the details of the IT services to be delivered
  - Includes relationships to the business and the business processes that rely on the IT services
  - Facilitates the development of proactive/preemptive SLM, evolving into “Business Service Management”

- **Technical Service Catalog**
  - Not part of customer view – this underpins the Business Service Catalog
  - Includes the relationships to shared services, supporting services, components and CI’s necessary to support provision of service to the Business
  - Facilitates the development of SLA’s, OLA’s, and UPC’s
The combination of a Business Service Catalog and a Technical Service Catalog is invaluable for quickly assessing the impact of incidents and changes on the business.
Availability Management (AM) is the process of continually trying to ensure that all operational services meet their agreed availability targets and new or changed services are designed to meet their intended targets.

Key Activities:
- Monitoring, measuring, analyzing and reporting service and component availability (reactive)
- Designing for availability (proactive)
- Identifying VBFs (Vital Business Functions) – the business-critical elements of the business process supported by an IT service
- Addressing Component Availability as well as the impact of Component Availability on Service Availability

Common Metrics:
- Four aspects: Availability, Reliability, Maintainability, Serviceability
- % available, % unavailable, Duration, Frequency of Failure
- Uptime and Downtime (MTTR, MTBF, MTBSI, MTRS)
Availability Management Process

- Reactive & proactive elements

- AMIS includes reports, availability plan, design criteria & testing schedule
Availability Terms and Measures

- Availability (%) = \( \frac{(\text{AST} - \text{DT})}{\text{AST}} \)
  - AST = Agreed Service Time
  - DT = Downtime

- Reliability

- Maintainability

- Serviceability
Availability and the Incident Lifecycle

- Incident start
- Uptime
- Service available
- Availability
- Downtime (time to restore) (MTRS)
- Service unavailable
- Diagnose
- Recover
- Detect
- Repair
- Restore
- Time between system incidents
- Time
- Uptime (availability)
- Service Available
- Time between failures (MTBF)

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Capacity Management (CM) is the process of ensuring that cost-justifiable IT capacity in all areas of IT always exists, and is matched by the current and future agreed needs of the business.

Key Activities:
- Produce & maintain Capacity Plan
- Modeling and trending to predict changes in IT services
- Ensure achievement of performance targets
- Resolve performance & capacity related incidents & problems
- Preempting performance issues
- Assess capacity & performance impact of changes
- Implement measures to improve service performance

Basic concepts:
- ‘Balancing Act’
- Business Capacity Management
- Service Capacity Management
- Component Capacity Management
Creating the Capacity Plan

- On an **annual basis**, Capacity Management should produce a plan that documents the current levels of resource utilization and service performance, and forecasts future requirements to support the IT services that underpin the business activities.
Supplier Management

- Supplier Management (SM) is the process of managing suppliers and services to provide seamless quality of IT services to the business, ensuring value for money.

- **Key Activities**
  - Identifying the business need and preparing the business case
  - Evaluating and procuring new suppliers
  - Establishing new suppliers and contracts

- **SM manages all aspects of External Suppliers**
  - Involved in provision of IT Services from tender, to monitoring and reviewing performance through renewal/termination of contracts

✓ Refer to “Service Strategy Delivery/Sourcing Options”
## Service Delivery Strategy Options

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insourcing</td>
<td>Utilizes internal organizational resources in the design, development, transition, operation and support of new or changed services</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>Utilizes the resources of one or more external organizations to provide a well-defined portion of a service’s design, development, operation, etc.</td>
</tr>
<tr>
<td>Co-sourcing</td>
<td>Combination of insourcing and outsourcing</td>
</tr>
<tr>
<td>Partnership</td>
<td>Formal arrangements between two or more organizations to work together to leverage critical expertise or market opportunities</td>
</tr>
<tr>
<td>Business Process Outsourcing</td>
<td>Relocating entire business functions, to be managed by another organization at a low-cost location. Common examples are accounting, payroll and call center operations</td>
</tr>
<tr>
<td>Application Service Provision</td>
<td>On-demand software/applications (“shared computer-based services”, provided by an application service provider (ASP))</td>
</tr>
<tr>
<td>Knowledge Process Outsourcing</td>
<td>Newest form of outsourcing, KPO differs from BPO by providing domain-based processes and business expertise rather than just process expertise. Requires advanced analytical and specialized skills from the outsourcing organization</td>
</tr>
</tbody>
</table>
Information Security Management (ISM) is the process of aligning IT security with business security and ensuring that security is effectively managed in all service and service management activities.

**Key Activities:**
- Create and maintain an *information security policy*
- Communicate and enforce the policy
- Assess and classify all system assets and documentation
- Ensure **Confidentiality**, **Integrity** and **Availability** of organization’s assets, information, data and IT services are maintained

**Security Measures:**
- Prevention/Reduction
- Detection/Repression
- Correction/Recovery
- Evaluation
Framework for Managing IT Security

Customer – Requirements – Business Needs

**MAINTAIN**
- Learn
- Improve
- Plan
- Implement

**PLAN**
- Service Level Agreements
- Underpinning contracts
- Operational Level Agreements
- Policy Statements

**CONTROL**
- Organize
- Establish framework
- Allocate responsibilities

**IMPLEMENT**
- Create awareness
- Classification and registration
- Personnel security
- Physical security
- Networks, applications, computers
- Management of access rights
- Security incident procedures

**EVALUATE**
- Internal audits
- External audits
- Self assessments
- Security incidents

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IT Service Continuity Management (ITSCM) is the process of ensuring that the required IT technical and service facilities can be resumed within required and agreed business time scales.

Key Activities:
- Setting policies
- Specifying terms of reference and scope
- Allocating resources

Recovery Options:
- Do nothing
- Manual Backup
- Reciprocal Agreement
- Gradual Recovery (Cold Standby)
- Intermediate Recovery (Warm Standby)
- Fast Recovery (Hot Standby)
- Immediate Recovery (Hot Standby)
IT Service Continuity Management

- **ITSCM Concepts**
  - Support overall Business Continuity Management (BCM)
  - Match strategy and plans to Business Continuity Strategy and plans
  - Integrate into ongoing operations

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Main Objectives:
- Ensure consistent design of services
- Coordination of all design activities across projects, changes, suppliers & support teams
- Manage schedules, resources & conflicts
- Maintain governance

Governance supplied by Design Coordination:
- Maintain policies and guidelines for design activities
- Plan & forecast future resource demands
- Ensure all requirements are appropriately addressed in service designs (focusing on utility and warranty, not on the actual design)
Service Design Review

- Service Design Objective: Convert strategic objectives into portfolios of services and service assets.

- Service Design’s ultimate concern is the design of new or changed services for introduction into a production environment.
  - Also concerned with the design of new/changed processes required to deliver and support these services

- Aspects of Service Design
  - New or Changed Services (Service Solutions)
  - Service Management Systems and Tools (Service Portfolio)
  - Technology Architectures
  - Processes (Input → Output of service)
  - Measurement Systems and Metrics

- Service Design Package defines all aspects of an IT Service and its requirements through each stage of its lifecycle.
  - SDP is produced for each new IT Service, major Change, or IT Service Retirement
1. A __________ is a means of delivering __________ to customers by facilitating __________ customers want without the ownership of specific __________ and __________.

2. A __________ ____________ ensure that a process is being performed as documented.

3. A ________ _________ represents the service across the organization.

4. __________ _________ is charged with ensuring a holistic approach, identifying and managing risks in services going live.

5. The four types of metrics included in Measurement design are ________, ________, __________ and __________.

6. A ______ ________ ________ should be produced for each new service, each major change, and each service retirement.

7. Match the Service Design Process to the question it addresses:
   - Is IT there when we need it?
   - Are we protecting our IT assets?
   - What services can we offer customers?
   - Are suppliers meeting the terms of their contracts?
   - How fast can we get back to business?
   - How much IT infrastructure do we need?
1. The main objective of Availability Management is:
   a) To provide maximum availability for IT Services
   b) To ensure that service availability matches or exceeds the agreed needs of the business
   c) To ensure that all targets in Service Level Agreements for customers are continually delivered
   d) To guarantee availability levels for services and components

2. What is another term for Uptime?
   a) Mean Time Between Failures (MTBF)
   b) Mean Time to Restore Service (MTFS)
   c) Mean Time Between System Incidents (MTBSI)
   d) Relationship between MTBF and MTBSI

3. Which aspect of Service Design is missing from the list below?
   a) The design of services
   b) The design of Service Management systems and tools
   c) The design of technology architecture and management systems
   d) The design of the measurement systems, methods and metrics to be used
   a) The design of Functions
   b) The design of Service Level Agreements
   c) The design of applications
   d) The design of processes
1. Which of the following statements about Supplier Management is incorrect?
   a) Supplier Management ensures that suppliers meet business expectations
   b) Supplier Management provides capabilities for seamless quality in IT services
   c) Supplier Management negotiates internal and external agreements to support the delivery of services
   d) Supplier Management should be involved in all stages of the service lifecycle

2. A Service Catalog should contain which of the following?
   a) The License information of all software
   b) Decommissioned Services
   c) Proposed or in development Services
   d) Details of all operational services

3. Which of the following is an activity of IT Service Continuity Management?
   a) Advising end users of a system failure
   b) Documenting the fallback arrangements
   c) Creating reports regarding availability
   d) Guaranteeing that the Configuration Items are constantly kept up-to-date
Service Transition
Service Transition
Definition & Objectives

- From ITIL: “The management & co-ordination of processes, systems & functions to package, build, test and deploy a release into production & establish the service specified in the requirements.”

- Objectives:
  - Plan and manage resources to successfully establish a new or changed service
  - Implement within cost, quality and time estimates
  - Proper use of services and technology solutions
  - Set customer expectations
  - Integrate release into business processes and services
  - Reduce errors and variations
Service Transition – Business Value

- Adaptability to new requirements & market developments
- Alignment of new service with customer’s requirements
- Success rate of changes & releases
- Prediction of service levels & warranties
- Less variation between actual, estimated & approved resources
- Increased productivity
- Improved risk management
Goals and Objectives

- Successful planning and coordination of resources
- Ensure common framework in place for service transitions
- Ensure proper planning for alignment of customer/business change plans & service transition plans

Purpose

- Plan for capacity and resource requirements
- Support for service transition teams
- Ensure integrity of changes with all Service Transition processes
- Coordinate activities across projects, suppliers and service teams
The Service V Model

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Configuration Management

ITIL-defined goal:

- “To support the customer and business control objectives and requirements efficiently and effectively while maximizing quality and compliance benefits and optimizing the service assets, configurations, capabilities and resources”

Configuration Management Best Practices

- Service Asset and Configuration Management uses CMS as support system(s) to manage large and complex IT services and infrastructure

- CMS maintains relationships between service components as well as between the components and incidents, known errors, changes, etc.

- Supports asset management

- CMS may take data from several physical CMDBs (Configuration Management Databases)

- Configuration Baseline – captures details at a specific point in time, and used as a reference point for future builds, releases and changes
Configuration Management System
Knowledge Management

- D-I-K-W Model
  - Improve efficiency by reducing the need to rediscover knowledge

- Objective of Knowledge Management is to ensure that the right information is delivered to the appropriate place or person at the right time to *enable informed decisions*
Elements of a Configuration System

- Configuration Item
  - An asset, service, component or other item that is or will be under the control of Configuration Management
    - Organization CIs
    - Internal CIs
    - External CIs
    - Interface CIs
    - Service Lifecycle CIs
    - Service CIs
Elements of a Configuration System

- CMS stores attributes
  - Any information about the CI that might be needed

- CMS stores relationships
  - Between CIs and within incident, problem and change records

- CMS has multiple layers
  - Data (sources and tools)
  - Information integration
  - Dashboards, scorecards (knowledge processing)
  - Presentation layer
Elements of a Configuration System

- Definitive Media Library (DML)
  - The secure library in which the definitive authorized versions of all media CIs are stored and protected.

  Includes:
  - Master copies of versions that have passed QA checks – may consist of one or more software libraries/file-storage areas
  - Master copies of all controlled software in an organization, including definitive copies of purchased software (along with licensing documents & information)
  - Master copies of controlled documentation for systems
DML and CMDB Relationship

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Configuration Management Roles

- **Service Asset Manager**
  - Implements service asset policies and procedures
    - Includes AM systems, processes & standards
    - Staffing
    - AM tools

- **Configuration Manager**
  - Implements configuration management policies and procedures
    - Includes new and existing CM systems, processes & standards
    - Staffing
    - CM tools
    - Population and management of CMS
Objective:

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

- **Change Management**
  - Ensures that standardized methods and techniques are used for efficient and immediate handling of all changes to the IT infrastructure, while minimizing change-related incidents.

- A CHANGE is an action that results in a new status for one or more IT infrastructure Configuration Items (CI).

- A REQUEST FOR CHANGE (RFC) is the main input to the Change Management process.
Policies and Standards
- Define to internal and external providers what the change requirements are
  - Includes the consequences of non-adherence to policy
  - Change Windows
  - Performance Standards

Requirements
- Relevant legislation, industry codes of practice, organizational requirements

Eliminating unauthorized change
- For effectiveness and efficiency, as well as for legal reasons

Identification & classification of changes
- Impact, urgency, priority
Change Management Concepts

- Organization, roles and responsibilities
  - Accountability and responsibility of all stakeholder
  - Change authorization
  - Composition of Change Advisory Board and ECAB

- Communication
  - To stakeholders, enabling them to do preparation and planning
  - Change reports, schedule and release plans

- Grouping related changes into release, build or baseline

- Interface with incident & problem management to measure and reduce change-related incidents

- Configuration Management interface
  - Impact assessment and reporting
  - Identification of high-risk, high-impact CIs
Change Management Concepts

- **Service Change**
  - The addition, modification or removal of an authorized, planned or supported service or component & associated documentation.

- **Change types**
  - **Normal**
    - A service change that is not pre-approved.
  - **Standard (Pre-Authorized)**
    - A service change pre-authorized by change management with an accepted, established procedure to provide a specific change requirement.
  - **Emergency**
    - A service change intended to repair an error (vulnerability) in an IT service that (could) negatively impact the business to a high degree.

- **Remediation Planning**
  - Planning for backing out changes must be incorporated
  - Important step to establish that the remediation is viable
Managing Changes

- Create and record RFC
- Review RFC
- Assess & Evaluate
- Authorize
- Plan updates
- Implementation
- Review & Close

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Change Management Roles

- **Change Manager**
  - Receive, allocate and prioritize RFCs
  - Chair CAB & ECAB meetings, determine attendees
  - Issue Change Schedules

- **Change Authority**
  - Formal authorization must be obtained for each change from a change authority (a role, person or group)

- **Change Advisory Board**
  - May vary considerable depending on change, but might include suppliers, Problem Manager, Service Level Manager & Customer Relations staff

- **Emergency Change Advisory Board**
  - A subgroup of the change advisory board that makes decisions about emergency changes. Membership may be decided at the time a meeting is called, and depends on the nature of the emergency change.
Change Management Concepts

- Change Management – “7 R’s”
  - These questions must be answered for all changes:
    - Who RAISED the change?
    - What is the REASON for the change?
    - What is the RETURN required from the change?
    - What are the RISKS involved in the change?
    - What resources are REQUIRED to deliver the change?
    - Who is RESPONSIBLE for the build, test and implementation of the change?
    - What is the RELATIONSHIP between this change and other changes?
Objectives

- Establish Release & Deployment plans
- Enable building, installation, testing & deployment of release package
  - Successfully implemented on schedule
- Ensure services are capable of delivering agreed service requirements (utility, warranty, service level)
- Ensure knowledge transfer to customer & user (and skills transfer to operations and support staff)
- Minimize impact on production services
- Customer satisfaction
Release Policy – strategy for releases, derived from Service Design phase, typically includes:

- Release Description
- Roles and responsibilities at each stage in process
- Expected frequency for each type of release
- Approach for accepting and grouping changes into a release
- How the configuration baseline is captured and verified against actual release contents
- Entry and Exit criteria and acceptance criteria for release into all environments
- Criteria for transition from early life support to Service Operations
- Any mechanisms for automating the build, installation, testing and release
Release and Deployment

- **Release unit:**
  - Components of an IT service that are normally released together. A release unit typically includes sufficient components to perform a useful function. For example, one release unit could be a desktop PC, including hardware, software, licenses, documentation etc. A different release unit may be the complete payroll application, including IT operations procedures and user training.

- **Release package:**
  - A set of configuration items that will be built, tested and deployed together as a single release. Each release package will usually include one or more release units.
Release types:

- **Major Release** – contains a great deal of new functionality. May also be known as a Major Upgrade. Generally supersedes all preceding minor upgrades.

- **Minor Release** – contains small enhancements and fixes and general supersedes previous emergency fixes.

- **Emergency Release** – normally linked to an emergency change, and contains small fixes.
**Release and Deployment**

- **Release Unit**
  - Portions of a service or IT infrastructure that is normally released together according to the organization’s release policy
    - Big Bang vs. Phased
    - Push vs. Pull
    - Automated vs. Manual

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A phased roll-out across several geographical locations

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Service Transition Objective: The development and improvement of capabilities for transitioning new and changed services into operation.

Basic Concepts:
- Focus on developing the ability/capability for IT to transition (build, test & release) ANY service in a consistent and repeatable way.
- Enables IT to effectively manage MANY changes/transitions.
- Processes within Service Transition have the responsibility to manage these changes/transitions.
  - Service Validation and Testing
  - Knowledge Management
  - Service Asset and Configuration Management
  - Change Management
  - Release and Deployment Management
1. A _____ ______ follows all of the steps of the change process. It is assessed by either a Change Manager or Change Advisory Board.

2. The goal of ________ and ________ ______ is to deploy releases into production and establish effective use of the service to deliver value to the ________ and be able to handover to ________ ________.

3. The middle steps of the Data to Wisdom graph are ________ and ________.

4. The ________ ________ Model maps levels of configuration baselines to testing, and while traditionally associated with the waterfall lifecycle, is just as applicable to other lifecycles, including iterative lifecycles, such as prototyping and RAD approaches.

5. TRUE or FALSE: Each Configuration Management System (CMS) is driven by a single, unique Configuration Management Database (CMDB).

6. TRUE or FALSE: Service Transition should be involved early in the design of services.
1. Consider the following statements:
   1) Service Transition provides guidance on transitioning new services into the live environment.
   2) Service Transition provides guidance on releases.
   3) Service Transition provides guidance on the transfer of services to or from an external provider.

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

2. The following options are considered within which process?
   o Big Bang vs. Phased
   o Push vs. Pull
   o Automated vs. Manual

   a) Incident Management
   b) Release and Deployment Management
c) Service Asset and Configuration Management
d) Service Catalog Management
1. Which of the following best describes the primary objective of Knowledge Management?
   a) Auditing the configuration management system from a business perspective
   b) Reducing the staffing requirements for the Service Desk and other support teams
   c) Ensuring reliable and secure information and data is available throughout the Service Lifecycle
   d) Reducing the average Mean Time to Restore (MTTR) for incidents affecting Service availability

2. What is the role of the Emergency Change Advisory Board (ECAB)?
   a) To make sure the Change Manager responds urgently to emergency changes
   b) To assist the Change Manager to implement urgent 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 rushing the emergency change process so that changes can
      occur quickly

3. 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
   c) Build service models to justify ITIL implementations
   d) Provide capabilities for managing documents across the organization
Service Operation
From ITIL: “Achieve a balance between the business (to meet its objectives) and the effective functioning of components that support services, to focus on effectively managing the day-to-day aspects while maintaining a perspective of the greater context.”

Objectives:
- Deliver and manage services at agreed levels
- Manage technology
- Conduct, manage & control day-to-day operation of processes
- Enable Continual Service Improvement
Service Operation – Business Value

- The only value that matters, is that perceived by the customer - Service Operation is where the value is delivered & judged.

- Service Strategy
  - Where service value is modeled

- Service Design & Service Transition
  - Where design and integration are validated

- Continual Service Improvement
  - Where measures for optimization are identified
Service Operations – General Principles

- Impact
  - Measure the effect of an Incident, Problem or Change on Business Processes

- Urgency
  - How quickly a solution is required

- Priority
  - Time required for actions to be taken
  - Priority is a function of Impact & Urgency

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Service Operations – General Principles

✓ Service Request
  o User request, usually for some kind of service change or new access to an existing IT service

✓ Event
  o Notification created by a service, CI or monitoring tool
  o Change of state that has significance for the management of a CI or IT service

✓ Alert
  o Warning or notice about threshold, change or failure that has occurred

✓ Incident
  o Unexpected interruption or reduction in quality of an IT service

✓ Problem
  o The unknown cause (root cause) of one or more Incidents
Service Operations – General Principles

- **Workaround**
  - Temporary means to resolve issues or difficulties

- **Known Error**
  - Problem that has a documented root cause and may have a workaround
  - Known errors are created and managed throughout the lifecycle by Problem Management

- **Known Error Database**
  - Storage for previous knowledge on requests and known errors
One of Service Operation’s key roles is to deal with the conflict between maintaining Status Quo and adapting to changes in business and technical environments.

**Internal vs. External focus**

- **IT Services**
  - How customers/users experience services

- **Technology Components**
  - How IT components and systems are managed to deliver the services.

- Both views are necessary when delivering services.

- **Differences:**
  - Stem from Management culture
  - Lead to Low maturity

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Service Operation Conflicts

- Stability vs. Responsiveness
  - Stability
    - Develop and refine standard IT management techniques & processes
    - Service components need to be available and perform consistently
  - Responsiveness
    - Ability to respond to changes without impact to other services
    - Take care when agreeing to required changes (consider all requirements and impact of delivering change)
Service Operation Conflicts

- **Quality of Service vs. Cost of Service**
  - Consistently deliver at agreed level while keeping costs & resource utilization at an optimal level
    - Too much focus on quality
    - Too much focus on cost
    - Service Level Requirements can be used to deliver service and avoid “over sizing” or “under sizing”
Service Operation Conflicts

- Reactive vs. Proactive
  - Reactive – does not act unless prompted by external driver
  - Proactive – always looking for ways to improve current situation
    - Continually scan, looking for potentially impacting changes
    - Seen as positive behavior
    - Can be expensive
  - Better to manage proactively
  - Achieve balance via:
    - Mature Prob/Incident processes
    - Prioritization of fixes & requests
    - Configuration & Asset Mgmt
    - Ongoing SLM involvement
Service Operation - Communications

- Good communication is crucial throughout all phases of Service Lifecycle, but most importantly within Service Operations
  - Between all IT Service Management staff
  - With Users / Customers / Partners / Suppliers
  - Critical for issue mitigation and/or avoidance

- Examples of Service Operation Communications:
  - Communication between shifts
  - Communication related to emergencies
  - Performance Reporting
  - Outage/Service Downtime Notifications
Event Management

- Remember that an EVENT is defined as a change of state that has significance for the management of a CI or an IT service

- Objectives
  - Detect & analyze events
  - Determine appropriate control actions
  - Automate Operations Management activities
  - Provide entry point for execution of processes & activities
  - Compare actual performance & behavior vs. design standards & SLAs

- Basic Concepts
  - Different types of events:
    - INFORMATIONAL: Indicate regular operation
    - WARNING: Indicate unusual, but not exceptional, operation
    - EXCEPTION: Indicate an exception
Alerts and Incidents

Alert:
• A warning that a threshold has been reached, something has changed, or a failure has occurred.
• Alerts are often created and managed by System Management tools.
• Alerts are managed by the Event Management process.
• Objective is to notify the concerned Stakeholders.

Incident:
• An unplanned interruption to an IT service.
• A reduction in quality of an IT service.
• Failure of an IT component that has not yet affected service, but could likely disrupt service if left unchecked. This can be raised by IT support teams.

All alerts are events, but not all events trigger alerts. All incidents are events, but all events are not incidents.
Incident Management

 Objectives
  o To Restore normal service operation as quickly as possible
  o Minimize the impact on business operation
  o Maintain optimal levels of service quality & availability

 Scope
  o Any event which disrupts, or could disrupt a service
  o Logged / reported requests by technical staff

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Incident Management

- **Metrics**
  - Monitor and report to determine effectiveness & efficiency
  - Total # of incidents, breakdown of incidents by status, size of current backlog, #/% of major incidents, average cost per incident

- **Challenges**
  - Ability to detect incidents early
  - Logging all incidents
  - Availability of information (especially Problems & Known Errors)
  - Integration with CMS
Incident Manager Role

- Manage work of Incident support staff (1st & 2nd line)
- Monitor effectiveness of process & recommend improvement
- Develop & maintain Incident Management systems
- Manage Major Incidents
- Develop & maintain the process & procedures
Problem Management

- Objectives
  - Manage the lifecycle of all problems
  - Prevent problems & resulting incidents
  - Eliminate recurring incidents
  - Minimize impact of incidents that cannot be prevented

- Basic Concepts
  - Problem Models:
    - Incidents may re-occur because of dormant or underlying problems
    - Creating Known Error record in the KEDB – ensure quicker diagnosis
    - Similar to Incident Models
  - Known Error
    - Understanding the root cause of an issue/failure, not necessarily having the solution, and recording it for future reference to aid in restoring services more efficiently
  - Known Error Database
  - Reactive (SO) vs. Proactive Problem Management (CSI)
  - Major Problem Review
    - Determined by organization’s priority system
    - Lessons Learned
Problem Management

Problem:

- The cause of one or more incidents.
- The cause is not usually known at the time a Problem Record is created and the Problem Management Process is responsible for further investigation.
- Prioritized in the same way and for the same reasons as Incidents.

Workaround:

- A temporary way to restore service failures to a usable level.
- Used for reducing or eliminating the impact of an Incident or Problem for which a full resolution is not yet available.
- Workarounds for Problems are documented in Known Error Records.
Request Fulfillment

- **Objectives**
  - Provide channel to request & receive standard services
  - Provide information about availability & obtaining services
  - Source & deliver components of requested services
  - Assist with general information

- **Basic Concepts**
  - Request Models:
    - Predefined process flow – similar to incident models
    - Standard Change

- **Role**
  - Service Desk & Incident Management staff handles Service Requests
    - Eventual fulfillment of requests by appropriate Service Operations team(s), department(s) and/or external suppliers
Access Management

- **Objectives**
  - Provide user rights to enable use of a service or group of services
  - Enable the execution of policies and actions

- **Basic Concepts**
  - **Access** – Level & extent of functionality or data that a user can use
  - **Identity** – Unique distinguishing information of an individual, verifies status
  - **Rights** – Actual settings to allow access (privileges)
  - **Services/Service Groups** – Access to set of services for group of users
  - **Directory Services** – Tool to manage access & rights

- **Roles**
  - Service Desk
  - Technical & Application Management
  - IT Operations Management
Class Exercise

- For any service defined and used during the previous days of class:
  - Describe an event that might occur during use of this service that would not be considered an incident or a problem
  - Provide the details for an incident that occurred during use of the service
  - Describe one entry in the Known Error Database related to the service
  - Give an example of how the Problem Management process would be involved for this service
  - Define the influence of Access Management on this service
Service Desk and other Functions

- Service Desk
  - Role
  - Objectives
  - Organizational Structures
  - Staffing
  - Metrics

- Role, objectives & organizational overlap:
  - Technical Management function
  - Application Management function
  - IT Operations Management function
    - IT Operations Control
    - Facilities Management
Service Desk

Objectives

- To quickly restore normal services
- To log all relevant requests
- To providing first-line support
- To resolving incidents
- To escalate
- To keep users informed
- To close all resolved requests
Service Desk

✓ Service Desk Options
  o Local
  o Central
  o Virtual
  o Follow-the-sun

❑ SPOC for dealing with services
  o Increase:
    ❖ accessibility -> single point of contact for users
    ❖ quality and turnaround times of requests
  o Improve:
    ❖ customer service, perception and satisfaction
    ❖ teamwork and communications
  o Reduce negative business impact
  o Provide more meaningful management information
Service Desk Metrics

- Evaluate performance of Service Desk on regular intervals
- Assess health, maturity, efficiency and effectiveness
- Analysis and detailed metrics such as:
  - First-line resolution rate
  - Average time to resolve an incident
  - Average time to escalate an incident
  - Average time to review and close a resolved call
  - The number of calls broken down by time of day and day of week
  - Percentage of customer or user updates conducted within target times
- Customer Satisfaction Survey
Technical Management

- **Goal**
  - Provide guidance to IT Operations about how best to carry out the ongoing operational management of technology
  - Input during Service Design phase in addition to day-to-day communications with IT Operations
  - Achieve stability and optimum performance

- **Technical Management**
  - Teams/departments of IT support and design staff that manage, support, build and test the hardware components of IT
  - Custodian of technical knowledge and expertise related to managing the IT infrastructure
  - Plays an important role in providing the actual resources to support the IT Service Management lifecycle
  - Ensures resources are effectively trained and deployed
Application Management

Goal
- Support business processes by designing and supporting application software to assist with service delivery

Application Management
- Usually divided into teams/departments based on the application portfolio, allowing easier specialization and more focused support
- Manages applications throughout their lifecycle
- Supports and maintains operational applications
- Plays important role in design, testing and improvement of applications that form part of IT Services
- Identify functional and manageability requirements for application software
- Identify skills required to support the applications
- Input to decisions related to “build or buy”
IT Operations Management

- **Goal**
  - Perform daily operational activities needed to manage the IT infrastructure, according to performance standards defined during Service Design

- **IT Operations Management**
  - Teams that monitor the infrastructure on a daily basis
  - Ensure delivery and support of services at agreed levels
  - Adds value to different lines of business, supporting the value network

- **Sub-functions:**
  - Operations Control (Console Management, Job Scheduling, Backup and Restore, Print & Output Management, Maintenance)
  - Facilities Management – management of the physical IT environment (typically the Data Center(s), computer rooms and/or recovery sites)
Organizational Model - Functions

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Service Operation Review

- Service Operation Objective: To enable effectiveness and efficiency in delivery and support of IT Services.

- Basic Concepts:
  - Service Operation is where value is seen from the customer perspective
  - Achieving balance:
    - Internal IT view vs. External Business view
    - Stability vs. Responsiveness
    - Quality of Service vs. Cost of Service
    - Reactive vs. Proactive
1. A _____ ______ will be the single point of contact for users.

2. The goal of _______ _______ is to restore normal service operation as quickly as possible and minimize the impact on business operations.

3. An _____ is a warning that a threshold has been reached or something has been changed. This is an example of an ________.

4. Problem Management’s goal is to minimize the adverse impact of _______ and _______ on the business that are causing errors within the IT infrastructure.

5. ______ _________ is effectively the execution of both Availability and Information Security Management.

6. TRUE or FALSE: A failure of a CI that has not yet affected service is still classified as an incident.
1) Technical Management is NOT responsible for which of the following?
   a) Maintenance of the technical infrastructure
   b) Documenting and maintaining the technical skills required to manage and support the IT architecture
   c) Defining the Operational Level Agreements for the various technical teams
   d) Diagnosis of, and recovery from, technical failures

2) The BEST definition of an event is:
   a) An occurrence that is significant for the management of the IT infrastructure of delivery of services
   b) An occurrence where a capacity threshold has been exceeded and an agreed Service Level has already been impacted
   c) A known system defect that causes low impact incidents
   d) A planned meeting between Service Level Managers and customers

3) What is the difference between a Known Error and a Problem?
   a) A Known Error involves an error in the IT infrastructure. A Problem does not involve such an error.
   b) A Known Error always originates from an incident. This is not always the case with a Problem.
   c) The underlying cause of a Known Error is known. The underlying cause of a Problem is not known.
   d) With a Problem, the relevant Configuration Items have been identified. This is not the case with a Known Error.
Service Operation
Sample Exam Questions

1. Which ITIL process ensures that the IT services are restored as soon as possible in the case of a malfunction?
   a) Change Management
   b) Incident Management
   c) Problem Management
   d) Service Level Management

2. Operations Control refers to:
   a) The managers of the Event and Access Management processes
   b) Overseeing the monitoring and escalating of IT operational events and activities
   c) The tools used to monitor the status of the IT Network
   d) The situation where the Service Desk manager is required to monitor the status of the infrastructure when Service Desk Operators are not available

3. After Incident Management, Problem Management and Event Management, which are the missing Service Operation processes?
   a) Access Management and Request Fulfillment
   b) Operations Control and Service Desk
   c) Facilities Management and Operations Control
   d) Change Management and Service Level Management
Continual Service Improvement
Continual Service Improvement

Goals
- Ensure continual improvements to ITSM Processes and IT Services
- Provide guidance in creating and maintaining value for customers through better design, implementation and support of services
- Look for ways to improve process effectiveness, efficiency and cost

Objectives:
- Review, analyze & make recommendations on improvement opportunities in each lifecycle phase
- Review & analyze Service Level Achievement results
- Identify & implement individual activities to improve IT Service quality
- Improve cost effectiveness
- Ensure applicable quality management methods are used to support CSI activities

CSI Register: A database or structured document used to record and manage improvement opportunities throughout their lifecycle.
You cannot manage what you cannot control

You cannot control what you cannot measure

You cannot measure what you cannot define

Working backwards from the above statements:
  - Define → Measure → Control → Manage
CSI – Business Value

- Increased organizational competency
- Integration between people & processes
- Reduction of redundancy increases business throughput
- Minimize lost opportunities
- Assure regulatory compliance which minimize costs & reduce risk
- Ability to react to change rapidly
The role of Governance across the Service Lifecycle

- Enterprise governance
  - Considers the whole picture - ensure that strategic goals are aligned & good management is achieved

- Corporate governance
  - Promoting corporate fairness, transparency & accountability
  - Ensures the provision strategy and business plans
  - Establishes the corporate policies and enables strategic direction, objectives, critical success factors

- IT governance
  - Integral part of enterprise governance & consists of the leadership, organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategies and objectives

- ITSM establishes, enables and executes the IT Strategy. Establishes Operations to assure high-quality, compliant IT service provisioning.

- Corporate Compliance: Assures adherence to Legal, Industrial and Regulatory requirements.

- IT Compliance: Assures the design and operability of IT policies, processes and controls
CSI, Quality & the Deming Cycle

- Plan, Do, Check, Act
  - Each cycle is followed by a consolidation or baseline, preventing slide in progress

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CSI – 6 Step Model

1. What is the vision?
   - High-level business objectives

2. Where are we now?
   - Assessments, benchmarks

3. Where do we want to be?
   - Measurable targets

4. How do we get there?
   - Process improvement

5. How can we tell we have got there?
   - Measurements and metrics

6. How do we keep going?
Role of measurement for Continual Service Improvement

- Service Measurement is a key process of CSI, responsible for measurement, analysis and reporting on IT Services and ITSM results.

Why measure?

- To validate
- To direct
- To justify
- To intervene

Types of metrics

- Technology
- Process
- Service
Measurements & Metrics
Value to the Business

- Measurable Improvements
  - Comparison of before with after

- Gains achieved through realization of improvements
  - Usually (but not always) measured in monetary terms

- Return on Investment (ROI)
  - The difference between the amount spent and the benefit achieved

- Value of Investment (VOI)
  - The extra value created, including non-monetary and/or long-term outcomes
An important beginning point for highlighting improvement is to establish baselines as markers or starting points for later comparison.

Baselines are also used to:
- establish an initial data point to determine if a Service or process needs to be improved.

It must be established at each level:
- strategic goals and objectives
- tactical process maturity
- operational metrics
- KPIs

If it is not initially established:
- The first measurement efforts will become the baseline.

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CSI
7 Step Improvement Process

1. Define what you **should** measure

2. Define what you **can** measure

3. Gather the data
   - Who? How? When? Integrity of data?

4. Process the data
   - Frequency? Format? System? Accuracy?

5. Analyse the data

6. Present and use the information, assessment summary, action plans, etc.

7. Implement corrective action

Goals:
- Identify
  - Vision
  - Strategy
  - Tactical Goals
  - Operational Goals
The CSI owner is ultimately responsible for the success of all improvement activities.

Single point of accountability combined with competence and authority helps guarantee the success of a SIP (Service Improvement Program).

Key responsibilities include:
- Development of the CSI domain
- Communicating the vision of CSI across the IT organization
- Ensures CSI roles have been filled
- Works with Service Owner to identify and prioritize improvements
- Defines and reports on CSI CSFs, KPIs and CSI activity metrics
- Ensures that baseline data is captured (to measure improvements against it)
Integration of CSI Components

Relationship between Deming Cycle, 7 Step Method, and CSI Model

- What is the Vision?
- Identify Vision and Strategy
  Tactical goals
  Operational goals

1. Define what you should measure.

2. Define what you can measure.

3. Gather the data (who, how, when?). Check integrity.

4. Process the data (frequency, format, system, accuracy).

5. Analyze the data (relations, trends, etc.).

6. Present and use the information (Summary, Plans, etc.).

7. Implement corrective action.

- Where are we now?
- Where we want to be?

Did we get there?

How do we get there?

Keep momentum going.
Continual Service Improvement is an ongoing activity of:
- monitoring and gathering data
- processing the data into logical groupings
- analyzing the data for meeting targets
- identifying trends
- identifying improvement opportunities

Improvements can be incremental in nature but also require a huge commitment to implement a new Service or meet new business requirements.

CSI commitment requires:
- ongoing attention
- a well thought out plan
- consistent attention to monitoring
- analyzing and reporting results with an eye toward improvement
CSI Objective: To ensure continual improvements to IT Service Management Processes and IT Services.

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

7 Step Improvement Process coordinates a structured approach for improvements to IT services and ITSM processes:
- Define what we should measure
- Define what we can measure
- Gather data
- Process data
- Analyze data
- Present information
- Implement corrective action

Deming Cycle – Plan, Do, Check, Act
CSI Review

1. The reasons why it is important to measure and report are to _______ that we are supporting the strategy and vision, to _______ actions/expenses/measures taken or applied, to _______ resources (time & money) in the most appropriate way and to _______ when necessary (e.g. to avoid breaching SLAs).

2. A _______ is used as reference point for later comparison.

3. _______ metrics are captured in the form of KPIs and activity metrics for the service management processes.

4. The answer to the CSI Model question “Where are we now?” involves _______ and _______.

5. The _______ _______ of quality improvement never stops – its steps of Plan, Do, Check, Act are repeated as many times as required.

6. Understanding the _______ of the _______ is the first activity of the CSI model.
1) What is the main reason for establishing a baseline?
   a) To standardize operation
   b) For later comparison
   c) For knowing the cost of services provided
   d) For roles and responsibilities to be clear

2) What is the correct order of the first four activities in the 7-step improvement process?
   a) Gather data, process data, analyze data and present data
   b) What is the vision, where are we now, where do we want to be, how do we get there?
   c) Define what you should measure, define what you can measure, gather data, process data
   d) Plan, Do, Check, Act

3) 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) What is the budget?
   d) Where are we now?
1. “If something cannot be measured, it should not be documented” is a principle that applies to which of the following?
   a) The Service-V Model
   b) A Service Level Agreement (SLA)
   c) An incident record
   d) A Configuration Item (CI)

2. Which of the following are the three main types of metrics as defined in CSI?
   1) Process Metrics
   2) User Metrics
   3) Service Metrics
   4) Technology Metrics
   5) Customer Metrics
   a) 1, 2 and 3  b) 2, 4 and 5  c) 1, 3 and 4  d) 1, 2 and 4

3. Which of the following benefits would be LEAST useful in supporting a business case for service improvement?
   a) Reduced technology investment by 20% due to more accurate capacity and performance modeling processes
   b) Reduced support manpower demand by 30% due to automated incident and problem management processes
   c) Reduced level of customer complaints due to more effective Service Level Management
   d) Reduced Problem resolution time by half due to improved knowledge management
Service Automation has as its goal the improvement of the utility and warranty of services

Advantages:
- Easier adjustment of capacity
- Optimization problems (scheduling) can be resolved more easily
- Knowledge capture is more achievable

Service Management tools enable the processes to work more effectively

Service Management can benefit from tools/automation:
- Detection and monitoring
- Pattern recognition and analysis
- Service Catalogue tracking
- Classification, prioritization and routing
Service Management
Tool Requirements

- Self-help capability (web front-end for Service Requests)

- Workflow or process engine
  - Incident & Change management
  - Pre-defined process control steps

- Integrated CMS

- Discovery/deployment/licensing technology

- Remote Control of Desktops for Service Desk personnel

- Monitoring (Automated & Manual)

- Diagnostic Utilities (Scripts and other utilities used during Incident Management)

- Reporting & Dashboard tools
Passing the ITIL Foundation Exam

- Use more than one strategy to determine the right answer
  - Process of elimination
  - Red flag words (always, never, only, guarantee → wrong 75% of the time)
  - Acronyms that work for you (VJDI, SCGPAPI, etc.)

- Look for clues in the question:
  - Which of the following could? (Don’t jump too quickly to “All of the above”!)
  - Watch out for ones that seem too easy (ex. Change Manager not Capacity Manager for sample question)

- Leave the hard questions for the end
  - Other questions later in the test might give you insights into the ones you’ve skipped

- Visualize concepts (Service-V Model, Points on the 7-Step Improvement Cycle, etc.)

- Take at least 2 or 3 full practice exams. For the questions you get wrong, understand why another answer was the better ITIL Foundation Exam choice.
Thank you for your participation.

Good luck on your certification exam!