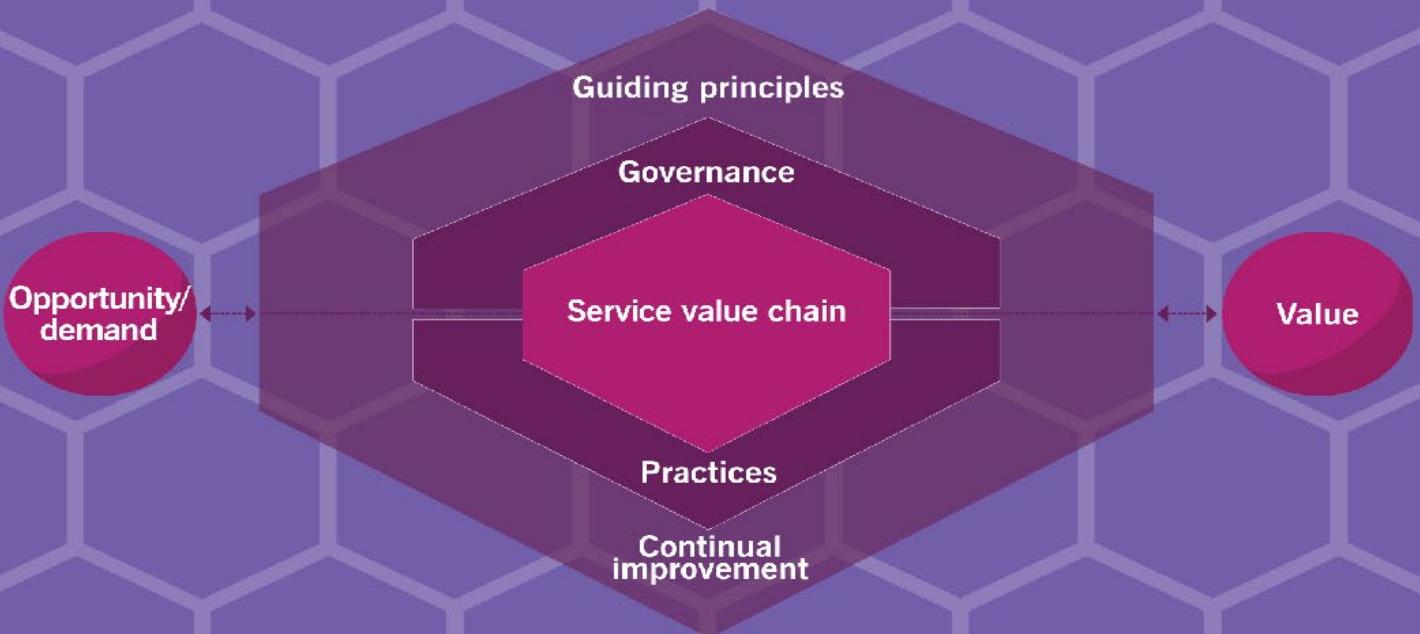


ITIL 4 FOUNDATION

Student Handout



Vinsys IT Services Pvt. Ltd.

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We as VINSYS



"To contribute significantly to the success of our clients' business by offering cost effective and quality services that would result in Customer Delight."

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With its corporate office located at Pune, India and operations across the globe in countries like Australia, China, Denmark, Germany, Oman, Qatar and Tanzania, Vinsys has moved along with an excellent track record for over a decade.

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We will consider the context of the organization & follow the strategic directions of the Top Management.



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Introduction

- Name
- Professional experience
- Current role
- Objectives about ITIL 4
- Expectation Setting

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Introduction & Course Agenda



Course Agenda

- Module 1 - Introduction to ITIL 4
- Module 2 - Key Concepts of Service Management
- Module 3 - The Four Dimensions of Service Management
- Module 4 - The ITIL Service Value System
- Module 5 - The Guiding Principles
- Module 6 - Service Value Chain
- Module 7 - ITIL Management Practices

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Exam Pattern

- Exam Format:
 - Questions: 40 multiple choice
 - Duration: 60 minutes
 - 25% extra time for non-native English speaker
 - Passing Score: 65% i.e. 26/40
 - Closed book exam
- Exam Guidelines:
 - We believe in Stringent and High integrity exam procedure
 - Exam will be supervised by Peoplecert Accredited person

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Revision History

Sr. No.	Version Number IS	Date	Description
1	ITIL 4_Foundation_IS_V1.0	18-Feb-2019	Document Created for Accreditation

Sr. No.	Version Number SH	Date	Description
1	ITIL 4_Foundation_SH_V1.0	18-Feb-2019	Document Created for Accreditation

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Module 1: Introduction to ITIL 4

- 1.1 EVOLUTION OF ITIL
- 1.2 ITIL V3 & ITIL 4
- 1.3 SERVICE VALUE SYSTEM
- 1.4 PURPOSE OF ITIL 4
- 1.5 ITIL 4 CERTIFICATION SCHEME

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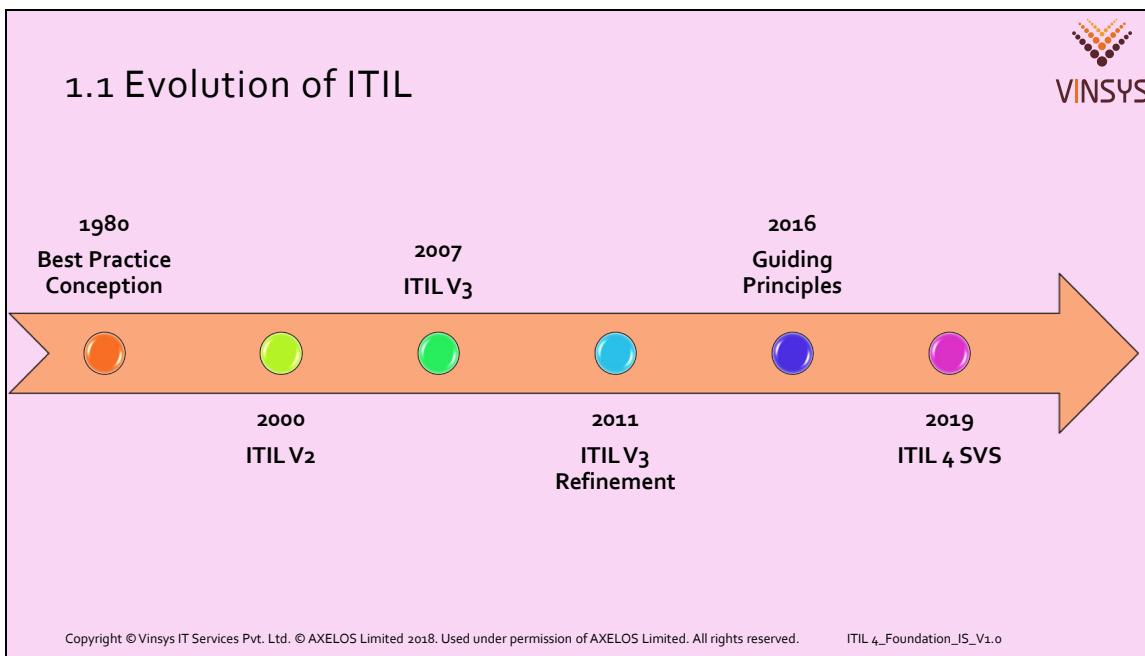


Module 1 Introduction to ITIL 4

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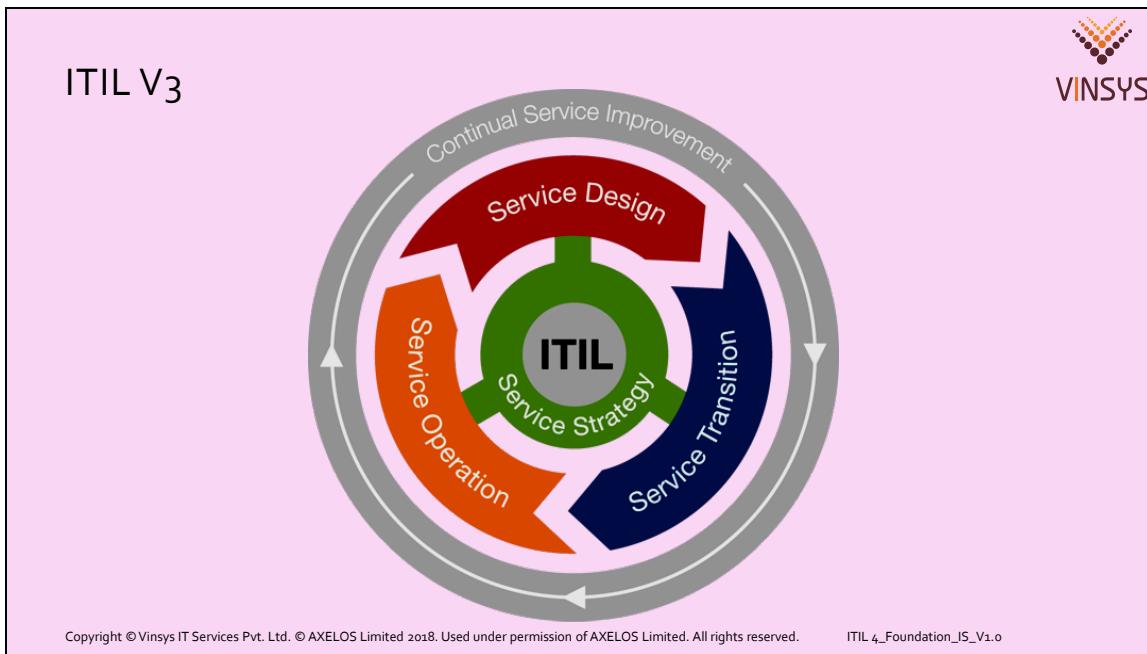
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1.1 Evolution of ITIL

- Technology is advancing faster today than ever before. Developments such as cloud computing, infrastructure as a service, machine learning, and block-chain have opened fresh opportunities for value creation, and led to IT becoming an important business driver and source of competitive advantage.
- Organizations must balance the need for stability and predictability with the rising need for operational agility and increased velocity.
- Service management is changing to address and support this organizational shift and ensure opportunities from new technologies, and new ways of working, are maximized.
- Service management is evolving, and so is ITIL.



- Lifecycle approach to ITSM
- 5 Lifecycle stages
- 26 Processes classified into 5 lifecycle stages
- Focusing Value Delivery



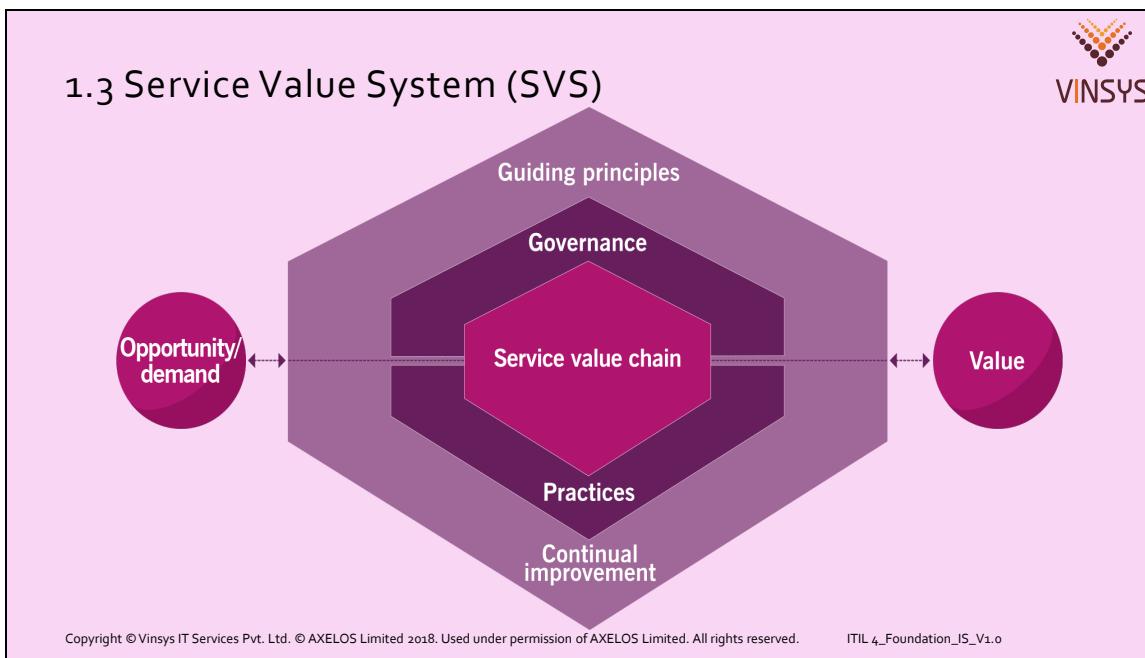
1.2 ITIL 4

- Best practice framework to embrace Modern ITSM practices
- Enhanced Customer experience
- Digital transformation
- Service Value System (SVS)

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1.2 ITIL 4

- ITIL 4 brings ITIL up to date by re-shaping much of the established ITSM practices in the wider context of customer experience, value streams, and digital transformation, as well as embracing new ways of working, such as Lean, Agile, and DevOps.
- ITIL 4 provides the guidance organizations need to address new service management challenges and utilize the potential of modern technology.
- It is designed to ensure a flexible, coordinated and integrated system for the effective governance and management of IT-enabled services.



1.3 Service Value System (SVS)

- The ITIL SVS represents how the various components and activities of the organization work together to facilitate value creation through IT-enabled services
- The core components of the ITIL SVS are:
 - ITIL service value chain
 - ITIL practices
 - ITIL guiding principles
 - Governance
 - Continual improvement
- The ITIL SVS facilitates this integration and coordination and provides a strong, unified, value-focused direction for the organization.
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 4.1, Pg 37



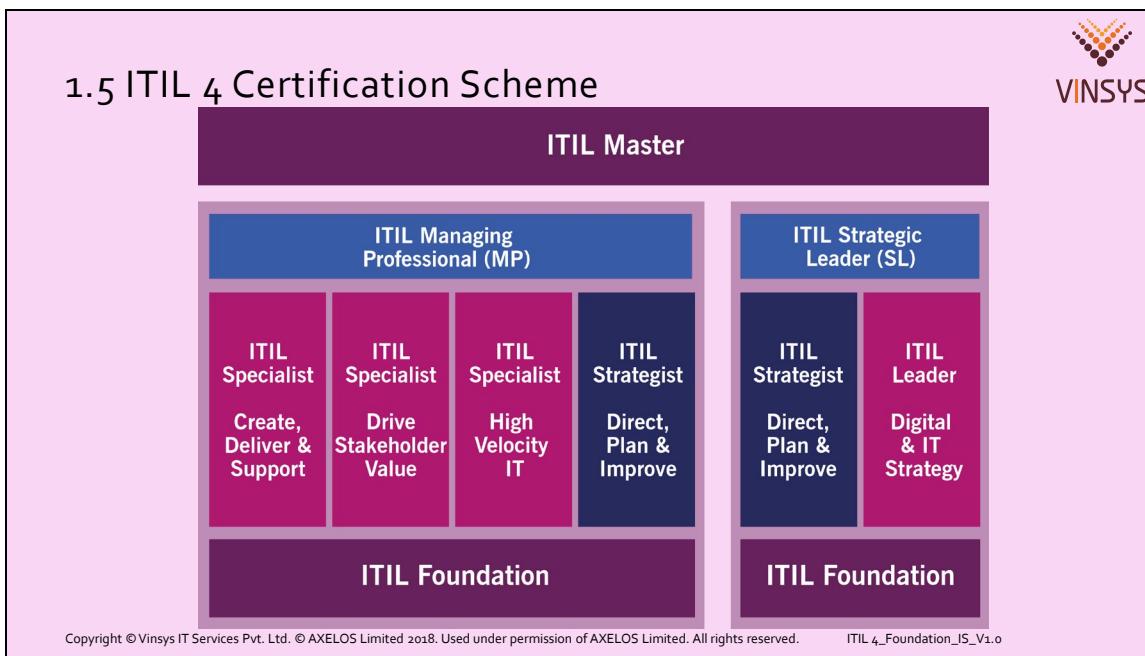
1.4 Purpose of ITIL 4

The purpose of ITIL 4 is to provide organization with comprehensive guidance for the management of IT-enabled service in the digital economy

- ITIL 4 ensures that an effective, efficient, flexible, coordinated and integrated system for governance and management of IT service is established and continually improving in the organization.

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1.4 Purpose of ITIL 4



1.5 ITIL 4 Certification Scheme

The ITIL 4 Certification Scheme comprises of the following modules:

- ITIL Foundation
- ITIL Specialist modules
 - Create, Deliver & Support
 - Drive Stakeholder Value
 - High Velocity IT
- ITIL Strategist
 - Direct, Plan & Improve
- ITIL Leader
 - Digital & IT Strategy
- ITIL Master

To obtain the designation ITIL Managing Professional (ITIL MP) or ITIL Strategic Leader (ITIL SL), the professional must complete all modules in each stream, with ITIL Strategist being a universal module for both streams.

If candidate has earned 17 credits or more through ITIL V3 then there is transition/bridge exam to gain ITIL Managing Professional (MP) designation

Module 2: Key Concepts of Service Management

- 2.1 WHAT IS SERVICE MANAGEMENT?
- 2.2 VALUE & VALUE CO-CREATION
- 2.3 ORGANIZATIONS & STAKEHOLDERS
- 2.4 PRODUCTS & SERVICES
- 2.5 SERVICE RELATIONSHIPS
- 2.6 VALUE: OUTCOME, COST & RISK

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Module 2 Key Concepts of Service Management



2.1 What is Service Management?

Service Management:

A set of specialized organizational capabilities for enabling value for customers in the form of services

- *Every Organization is Service Organization*
- *Almost all services today are IT enabled*

- Developing the specialized organizational capabilities requires an understanding of:
 - The nature of value
 - The nature and scope of the stakeholders involved
 - How value creation is enabled through services

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2.1 What is Service Management?

2.2 Value & Value Co-creation

2.2.1 Value



Value:

The perceived benefits, usefulness, and importance of something

- Value is subject to the perception of the stakeholders, whether they be the customers or consumers of a service, or part of the service provider organization
- Value can be subjective.

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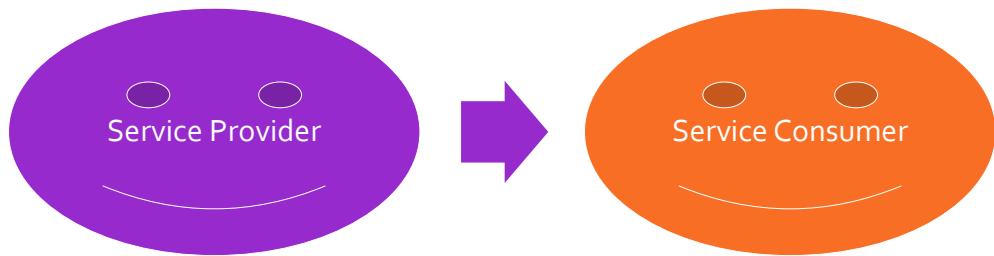
2.2 Value & Value Co-creation

2.2.1 Value



2.2.2 Value Delivery

- There was a time when organizations self-identifying as 'service providers' saw their role as delivering value to their customers in much the same way that a package is delivered to a building by a delivery company



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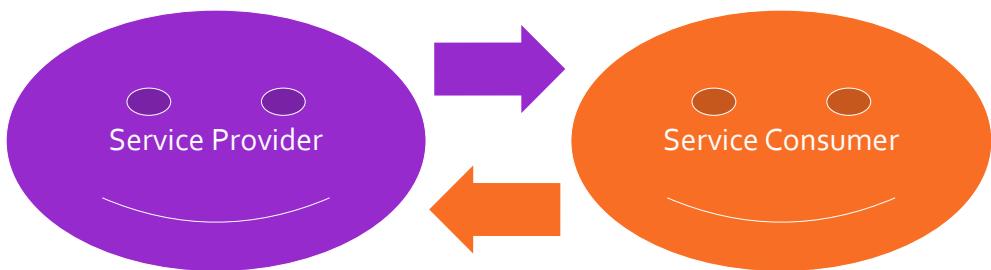
2.2.2 Value Delivery

- This view treated the relationship between the service provider and the service consumer as mono-directional and distant.
- The provider delivers the service and the consumer receives value; the consumer plays no role in the creation of value for themselves



2.2.3 Value Co-creation

- Increasingly, organizations recognize that value is co-created through an active collaboration between providers and consumers, as well as other organizations that are part of the relevant service relationships



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2.2.3 Value Co-creation

- Providers should no longer attempt to work in isolation to define what will be of value to their customers and users, but actively seek to establish mutually beneficial, interactive relationships with their consumers, empowering them to be creative collaborators in the service value chain.
- Stakeholders across the service value chain contribute to the definition of requirements, the design of service solutions and even to the service creation and/or provisioning itself

2.3 Organizations & Stakeholders

2.3.1 Organization



Organization:

A person or a group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives

- Organizations vary in size and complexity, and in their relation to legal entities, from a single person or a team to a complex network of legal entities united by common objectives, relationships, and authorities

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2.3 Organizations & Stakeholders

- In service management there are many different kinds of stakeholder, each of which must be understood in the context of the creation of value in the form of services
 - Service Provider
 - Service Consumer
 - Government
 - Supplier etc.

2.3.1 Organization

- Organizations vary in size and complexity, and in their relation to legal entities, from a single person or a team to a complex network of legal entities united by common objectives, relationships, and authorities



2.3.2 Service Provider

*Organization who deliver services are referred to as **Service Provider***

- The provider can be external to the consumer's organization, or they can both be part of the same organization
 - Ex. IT department to Functional units of same organization
 - Ex. Organization selling services on the open market to other businesses

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2.3.2 Service Provider

Organization in the provider role must have a clear understanding of who its consumers are in a given situation and who the other stakeholders are in the associated service relationships



2.3.3 Service Consumer

*Organization to whom services are delivered are referred to as **Service Consumer***

Service Consumer roles can be combined or separate:

Customer

- A person who defines the requirements for a service and takes responsibility for the outcomes of service consumption

User

- A person who uses services.

Sponsor

- A person who authorizes budget for service consumption

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2.3.3 Service Consumer

- Service consumer is a generic role that is used to simplify the definition and description of the structure of service relationships
- It is important to identify these roles in service relationships to ensure effective communication and stakeholder management. Each of these roles may have different, and sometimes even conflicting, expectations from services, and different definitions of value



2.3.4 Other Stakeholders

- Beyond the consumer and provider roles, there are usually many other stakeholders that are important to value creation.
 - Employees
 - Partners and suppliers
 - Investors and shareholders
 - Government organizations, regulators
 - Social groups etc.

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2.3.4 Other Stakeholders

- For the success, and even the continued existence of an organization, it is important that relationships with all key stakeholders are understood and managed.
- If stakeholders are unhappy with what the organization does or how it does it, the provider's relationships with its consumers can be in jeopardy

2.4 Products & Services

2.4.1 Service



Service:

*A means of enabling value co-creation
by facilitating outcomes that customers want to achieve,
without the customer having to manage specific costs and risks*

- The services that an organization provides are based on one or more of its products

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2.4 Products & Services

2.4.1 Service



2.4.2 Products

Product:

A configuration of an organization's resources designed to offer value for a consumer

- Products are typically complex and are not fully visible to the consumer.
- The portion of a product that the consumer actually sees does not always represent all of the components that comprise the product and support its delivery.
- Organizations define which product components their consumers see, and tailor them to suit their target consumer groups.

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2.4.2 Products

- The services that an organization provides are based on one or more of its products.
- Organizations own or have access to a variety of resources, including people, information and technology, value streams and processes, and suppliers and partners.
- Products are configurations of these resources, created by the organization, that will potentially be valuable for its customers



2.4.3 Service Offering

Service Offering:

A formal description of one or more services, designed to address the needs of a target consumer group.

A service offering may include goods, access to resources, and service actions

Service offerings may include:

- Goods: Ex. a mobile phone
- Access to resources: Ex. Access to the mobile network
- Service actions: Ex. User support

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2.4.3 Service Offering

Goods:

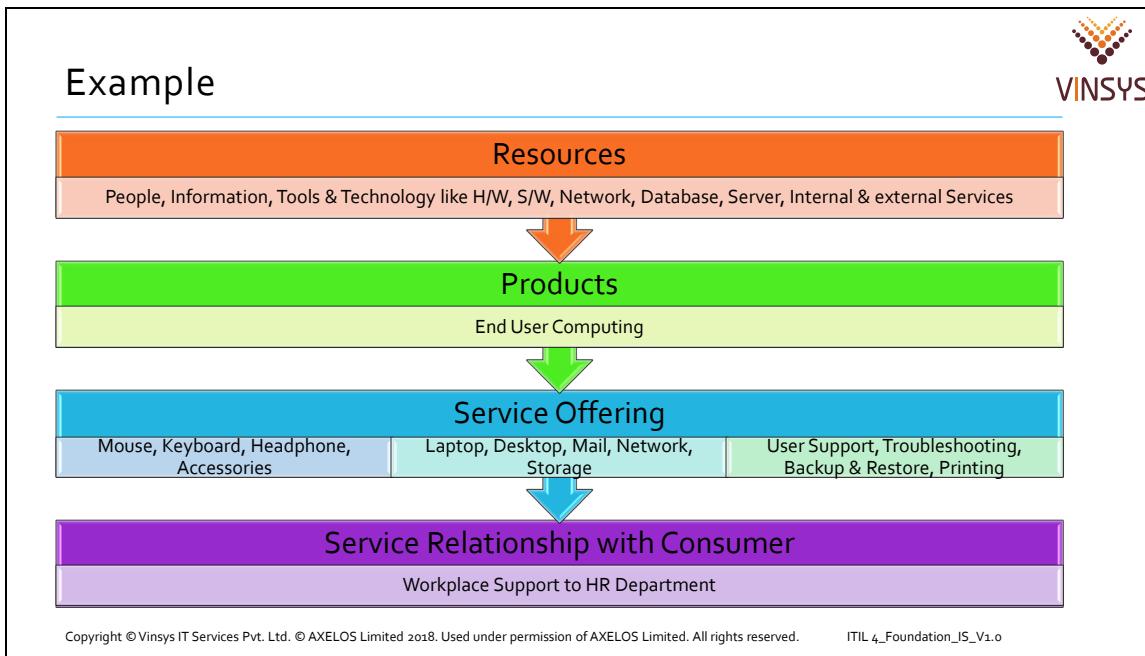
- Supplied to the consumer
- Ownership is transferred to the consumer
- Consumer takes responsibility for future use

Access to resources:

- Ownership is not transferred to the consumer
- Access is granted or licensed to the consumer under agreed terms and conditions
- The consumer can only access the resources during the agreed consumption period and according to other agreed service terms

Service actions:

- Performed by the service provider to address a consumer's needs
- Performed according to an agreement with the consumer





2.5 Service Relationships

Service relationship:

A cooperation between a service provider and service consumer.

Service relationships include service provision, service consumption, and service relationship management

Service relationship Management:

Joint activities performed by a service provider and a service consumer to ensure continual value co-creation based on agreed and available service offerings

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2.5 Service Relationships

- Service relationships are established between two or more organizations to co-create value.
- In a service relationship, organizations will take on the roles of service providers or service consumers.
- The two roles are not mutually exclusive, and organizations typically both provide and consume a number of services at any given time.



2.5.1 Service Provision

Service Provision:

Activities performed by an organization to provide services

- Service provision includes:
 - Management of the provider's resources, configured to deliver the service
 - Ensuring access to these resources for users
 - Fulfilment of the agreed service actions
 - Service level management and continual improvement.
 - Supplying of goods.

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2.5.1 Service Provision



2.5.2 Service Consumption

Service Consumption:

Activities performed by an organization to consume services

- Service consumption includes:
 - Management of the consumer's resources needed to use the service
 - Service actions performed by users, including utilizing the provider's resources, and requesting service actions to be fulfilled.
 - Receiving (acquiring) of goods

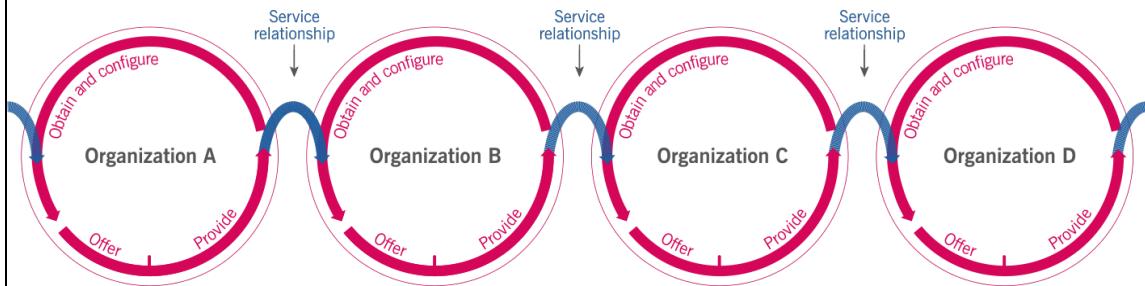
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2.5.2 Service Consumption



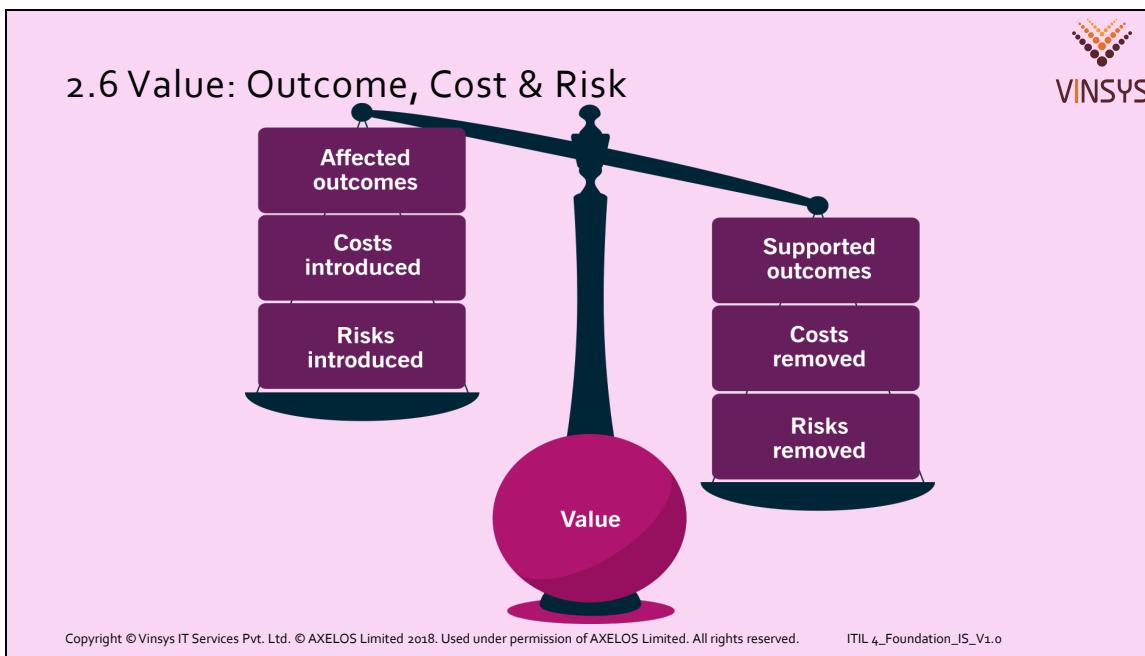
2.5.3 The Service Relationship Model

- Service Providers are also Service Consumer
- Service Relationships are not necessarily linear, it can be mesh



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2.5.3 The Service Relationship Model



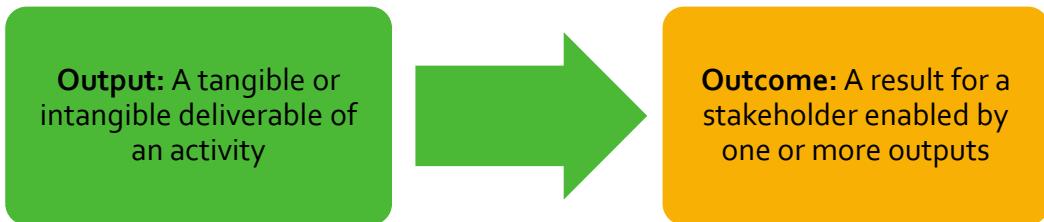
2.6 Value: Outcome, Cost & Risk

- Service providers help their consumers to achieve outcomes, and in doing so, take on some of the associated risks and costs
- On the other hand, service relationships can introduce new risks and costs, and in some cases, can negatively affect some of the intended outcomes, while supporting others
- Service relationships are perceived as valuable only when they have more positive effects than negative
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 2.2, Pg 17



2.6.1 Outcomes

- Acting as a service provider, an organization produces outputs that help its consumers to achieve certain outcomes



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2.6.1 Outcomes

- Depending on the relationship between the provider and the consumer, it can be difficult for the provider to fully understand the outcomes that the consumer wants to achieve.
- In some cases, they will work together to define the desired outcomes
- In some cases, the consumers articulate their expectations quite clearly
- In some cases, service providers predict or even create demand for certain outcomes, forming a target group for their services



2.6.2 Costs

Cost:

The amount of money spent on a specific activity or resource

- From the service consumer's perspective, there are two types of Costs:
 - Costs removed from the consumer by the service (part of the value proposition)
 - Costs imposed on the consumer by the service (costs of service consumption)

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2.6.2 Costs

- From the provider's perspective, a full and correct understanding of the cost of service provision is essential.
- Providers need to ensure that services are delivered within budget constraints and meet the financial expectations of the organization



2.6.3 Risks

Risk:

A possible event that could cause harm or loss, or make it more difficult to achieve objectives.

Can also be defined as uncertainty of outcome, and can be used in the context of measuring the probability of positive outcomes as well as negative outcomes

- From the service consumer's perspective, there are two types of Risks:
 - Risks removed from the consumer by the service (part of the value proposition)
 - Risks imposed on the consumer by the service (Risks of service consumption)

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2.6.3 Risks

- It is the duty of the provider to manage the detailed level of risk on behalf of the consumer. This should be handled based on a balance of what matters most to the consumer and to the provider.
- The consumer contributes to the reduction of risk through:
 - Actively participating in the definition of the requirements of the service and the clarification of its required outcomes
 - Clearly communicating the critical success factors (CSFs) and constraints that apply to the service
 - Ensuring the provider has access to the necessary resources of the consumer throughout the service relationship



2.6.4 Utility & Warranty

Utility is the functionality offered by a product or service to meet a particular need

What the Service does?

Fit for Purpose

Either support the performance of the consumer or remove constraints from the consumer

Warranty is the assurance that a product or service will meet agreed requirements

How the Service performs

Fit for Use

Addresses areas such as availability, capacity, continuity & security. A service must have defined and agreed conditions, that are met

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2.6.4 Utility & Warranty

- To evaluate whether a service or service offering will facilitate the outcomes desired by the consumers and therefore create value for them, the overall utility and warranty of the service should be assessed
- The assessment of a service must take into consideration the impact of costs and risks on utility and warranty to generate a complete picture of the viability of a service
- Both utility and warranty are essential for a service to facilitate its desired outcomes and therefore help create value

Module 3: The Four Dimensions of Service Management

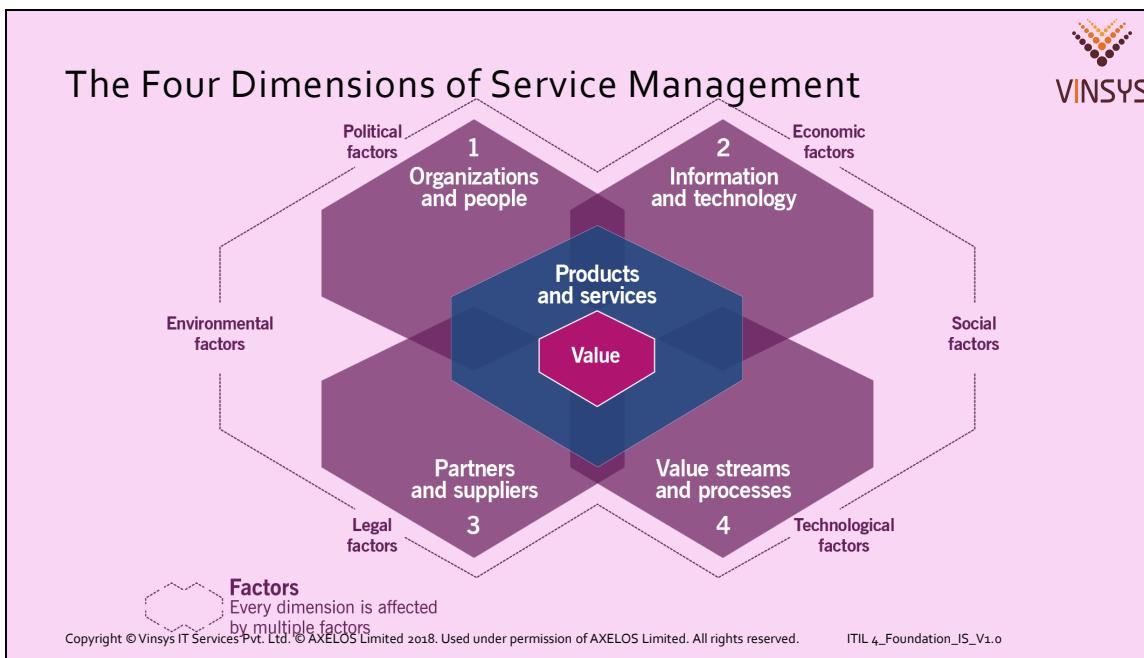
- 3.1 DIMENSION 1: ORGANIZATIONS & PEOPLE
- 3.2 DIMENSION 2: INFORMATION & TECHNOLOGY
- 3.3 DIMENSION 3: PARTNERS & SUPPLIERS
- 3.4 DIMENSION 4: VALUE STREAMS & PROCESSES
- 3.5 EXTERNAL FACTORS

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Module 3 The Four Dimensions of Service Management



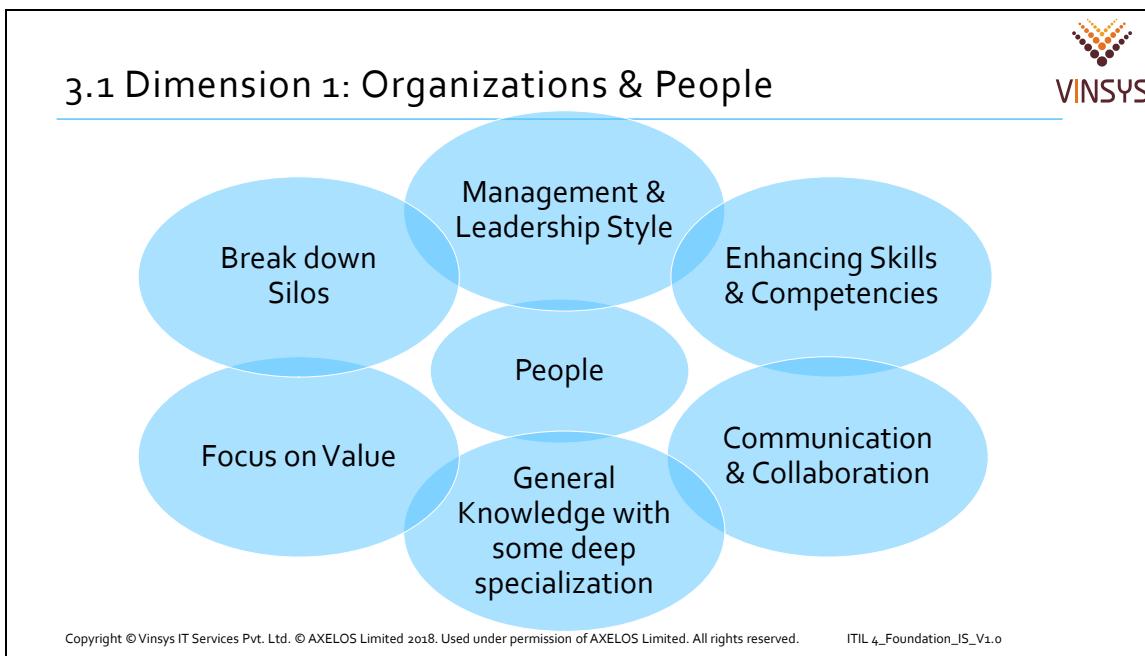
The Four Dimensions of Service Management

- These four dimensions are collectively critical to the effective and efficient facilitation of value for customers and other stakeholders in the form of products and services
- These four dimensions represent perspectives which are relevant to the whole SVS & applied to all Services being managed
- Failing to address all four dimensions properly may result in services becoming undeliverable, or not meeting expectations of quality or efficiency
- The four dimensions do not have sharp boundaries and may overlap
- The four dimensions are constrained or influenced by several external factors that are often beyond the control of the SVS
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 3.1, Pg 25



3.1 Dimension 1: Organizations & People

- Every person in the organization should have a clear understanding of their contribution towards creating value for the organization, its customers, and other stakeholders.
- Promoting a focus on value creation is an effective method of breaking down organizational silos.
- The organizations and people dimension of a service covers roles and responsibilities, formal organizational structures, culture, and required staffing and competencies, all of which are related to the creation, delivery, and improvement of a service.



Organization Culture evolve through

- Shared Values
- Trust & Transparency
- Leaders champion & advocates the Value
- Communication



3.2 Dimension 2: Information & Technology

- When applied to the SVS, this dimension includes,

Information and knowledge necessary for the ITSM

Technologies required for the ITSM

Relationships between components of SVS, such as the i/p & o/p of activities and practices

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3.2 Dimension 2: Information & Technology



3.2 Dimension 2: Information & Technology

- The technologies that support service management include, but are not limited to,
 - Workflow management systems
 - Knowledge bases
 - Inventory systems
 - Communication systems, Analytical tools
 - Artificial Intelligence, Machine Learning
 - Mobile platforms
 - Cloud solutions, Remote collaboration tools
 - Automated testing & Deployment solutions etc.

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3.2 Dimension 2: Information & Technology

- In the context of a specific IT service, this dimension includes
 - The information created, managed, and used in the course of service provision and consumption
 - All levels of IT architecture
 - Applications
 - Databases
 - Communication systems
 - Block-chain, Artificial Intelligence, and Cognitive computing
 - Cloud computing
 - Mobile apps

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3.2 Dimension 2: Information & Technology

- Information management is the primary means of enabling customer value
- Information is generally the key output of the majority of IT services

Information Architecture & Information Criteria

Availability

Reliability

Accessibility

Timeliness

Accuracy

Relevance

- Security and Regulatory compliance requirements in Information Management, are also a focus of this dimension

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Information Technology Considerations:

- Is this technology compatible with the current architecture of the organization and its customers?
- Do the different technology products used by the organization and its stakeholders work together?
- How are emerging technologies(ML,AI,IoT)likely to disrupt the service/organization?
- Does this technology raise any regulatory compliance issues with the organization's policies and information security controls, or those of its customers?
- Is this a technology that will continue to be viable in the foreseeable future?
- Is the organization willing to accept the risk of using aging technology, or of embracing emerging or unproven technology?
- Does this technology align with the strategy of the service provider/consumers?
- Does the organization have the right skills across its staff and suppliers to support and maintain the technology?
- Does this technology have sufficient automation capabilities to ensure it can be efficiently developed, deployed, and operated?
- Does this technology offer additional capabilities that might be leveraged for other products or services?
- Does this technology introduce new risks or constraints to the organization (for example, locking it into a specific vendor)?

The culture of an organization may have a significant impact on the technologies it chooses to use



3.3 Dimension 3: Partners & Suppliers

3.3.1

Relationship Between
Organization

3.3.2

Organization Strategy
for Partners & Supplier

3.3.3

Factors that influence
organization's
Partners & Supplier
Strategy

3.3.4

SIAM
Service Integration
and Management

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3.3 Dimension 3: Partners & Suppliers

Every organization and every service depend to some extent on services provided by other organizations



3.3 Dimension 3: Partners & Suppliers

3.3.1 Relationship Between Organization: It may involve various levels of integration and formality

Type of Relationship	Responsibility for the outputs	Responsibility for achievement of the outcomes	Level of formality
Goods supply	Supplier	Customer	Formal Supply contracts
Service delivery	Provider	Customer	Formal agreements and flexible cases
Service Partnership	Shared between Provider & Customer	Shared between Provider & Customer	Shared goals, generic agreements, flexible case-based arrangements

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3.3 Dimension 3: Partners & Suppliers

3.3.2 Organization Strategy for Partners & Supplier

- When it comes to using partners and suppliers, an organization's strategy should be based on its goals, culture, and business environment
 - Ex.1: Some organization may focus upon core competencies, and using partners/suppliers to provide other needs
 - Ex.2: Some organization may rely as much as possible on their own resources, using partners and suppliers as little as possible
 - There are many variations between these two opposite approaches

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3.3 Dimension 3: Partners & Suppliers

3.3.3 Factors that influence organization's Partners & Supplier Strategy



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Factors that may influence an organization's strategy when using suppliers include:

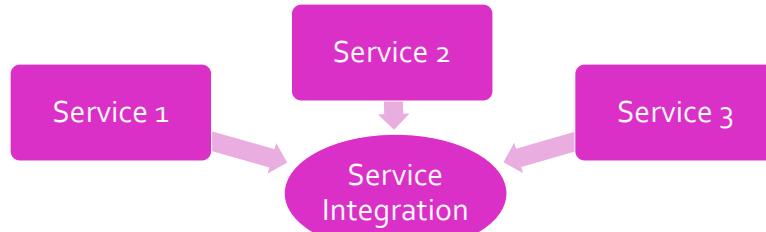
- Strategic focus: Some organizations may prefer to focus on their core competency and to outsource non- core supporting functions to third parties; others may prefer to stay as self-sufficient as possible, retaining full control over all important functions.
- Corporate culture: Some organizations have a historical preference for one approach over another. Long- standing cultural bias is difficult to change without compelling reasons.
- Resource scarcity: If a required resource or skillset is in short supply, it may be difficult for the service provider to acquire what is needed without engaging a supplier.
- Cost concerns: A decision may be influenced by whether the service provider believes that it is more economical to source a particular requirement from a supplier.
- Subject matter expertise: The service provider may believe that it is less risky to use a supplier that already has expertise in a required area, rather than trying to develop and maintain the subject matter expertise in house.
- External constraints: Government regulation or policy, industry codes of conduct, and social, political or legal constraints may impact an organization's supplier strategy.
- Demand patterns: Customer activity or demand for services may be seasonal or demonstrate high degrees of variability. These patterns may impact the extent to which organizations use external service providers to cope with variable demand.



3.3 Dimension 3: Partners & Suppliers

3.3.4 Service Integration and Management (SIAM):

- It involves the use of a specially established integrator to ensure that service relationships are properly coordinated
- It may be kept within the organization, but can also be delegated to a trusted partner



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3.4 Dimension 4: Value Streams & Processes

- Value Streams & Processes dimension defines the activities, workflows, controls, and procedures needed to achieve agreed objectives
- Value Streams & Processes focuses on
 - What activities the organization undertakes?
 - How activities are organized?
 - How the various parts of the organization work in an integrated and coordinated way?
 - How the organization ensures that it is enabling value creation for all stakeholders efficiently and effectively?

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3.4 Dimension 4: Value Streams & Processes



3.4.1 Value Streams for Service Management

Value Stream:

A series of steps an organization undertakes to create and deliver products and services to consumers.

- A value stream is a combination of the organization's value chain activities
- Value Chain approach helps to,
 - Increase value-adding activities
 - Decrease non-value-adding activities (Waste)
- Value stream optimization may include process automation or adoption of emerging technologies and ways of working to gain efficiencies or enhance user experience

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3.4.1 Value Streams for Service Management

- Identifying and understanding the various value streams an organization has is critical to improving its overall performance
- Structuring the organization's activities in the form of value streams allows it to have a clear picture of what it delivers and how, and to make continual improvements to its services
- Organizations should examine how they perform work and map all the value streams they can identify
- Value streams should be defined for each of the products and services
- Depending on the organization's strategy, value streams can be redefined to react to changing demand and other circumstances, or remain stable for a significant amount of time
- They should be continually improved to ensure that the organization achieves its objectives in an optimal way



3.4.2 Processes

Process:

A set of interrelated or interacting activities that transform inputs into outputs. A process takes one or more defined inputs and turns them into defined outputs. Processes define the sequence of actions and their dependencies



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3.4.2 Processes

- A process is a set of activities that transform inputs to outputs.
- Processes describe what is done to accomplish an objective, and well-defined processes can improve productivity within and across organizations.
- They are usually detailed in procedures, which outline who is involved in the process, and work instructions, which explain how they are carried out

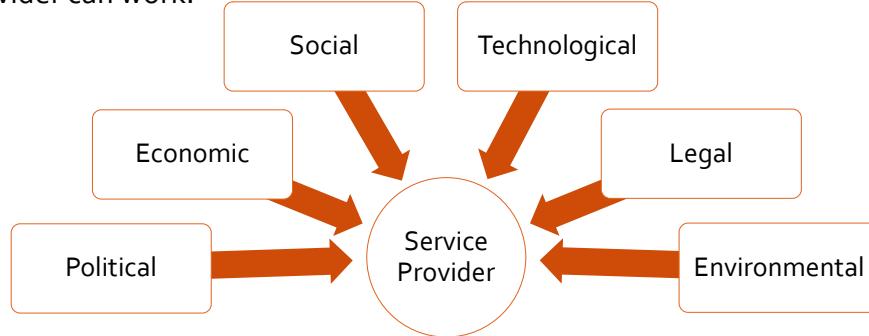
When applied to products and services, this dimension helps to answer the following questions,

- What is the generic delivery model for the service, and how does the service work?
- What are the value streams involved in delivering the agreed outputs of the service?
- Who, or what, performs the required service actions?



3.5 External Factors

- Service providers are affected by many external factors, and work in dynamic and complex environments that can exhibit high degrees of volatility and uncertainty and impose constraints on how the service provider can work.



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3.5 External Factors

- To analyse these external factors, frameworks such as the PESTLE (or PESTEL) model are used.
- PESTLE is an acronym for the political, economic, social, technological, legal, and environmental factors that constrain or influence how a service provider operates.
- Collectively, these factors influence how organizations configure their resources and address the four dimensions of service management

Module 4: The ITIL Service Value System

4.1 SERVICE VALUE SYSTEM OVERVIEW

4.2 INPUTS OF THE SVS

4.3 OUTCOME OF THE SVS

4.4 COMPONENTS OF THE SVS

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Module 4 The ITIL Service Value System

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4.1 Service Value System Overview

The ITIL SVS describes how all the components and activities of the organization work together as a system to enable value creation

- These components and activities, together with the organization's resources, can be configured and reconfigured in multiple combinations
- Each organization's SVS has interfaces with other organizations, forming an ecosystem to facilitate value

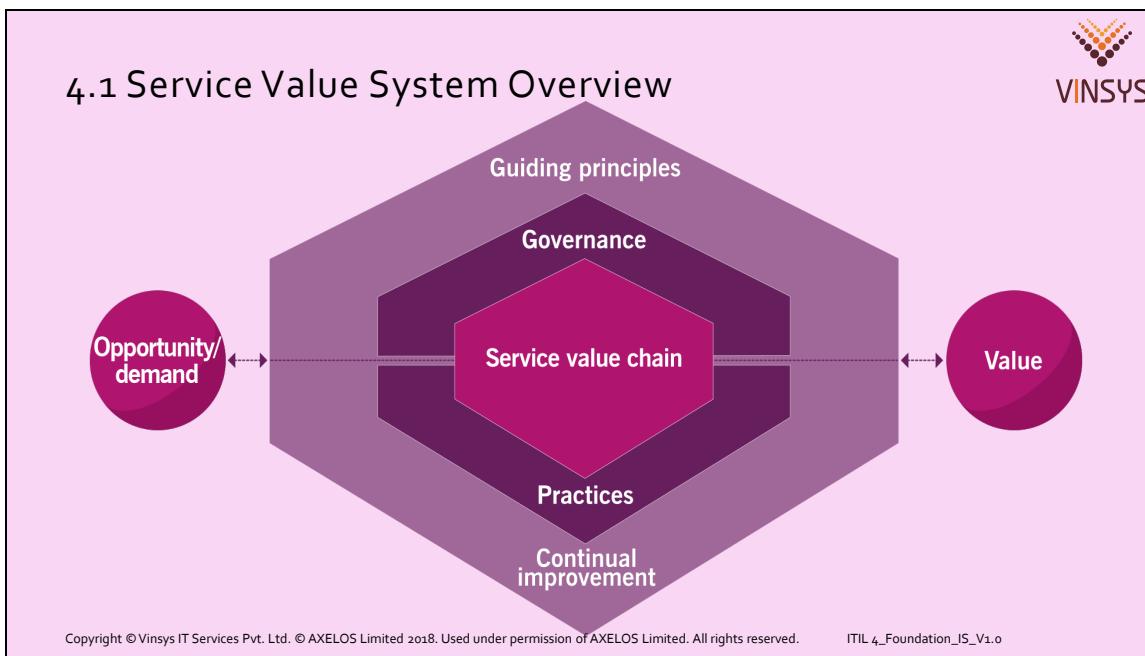
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4.1 Service Value System Overview

For service management to function properly, it needs to work as a system. One of the biggest challenges an organization face is organizational silos.

- Silos can be resistant to change and can prevent easy access to the information and specialized expertise that exists across the organization,
- It reduce efficiency and increase both cost and risk.
- Silos also make it more difficult for communication or collaboration to occur across different groups.
- A siloed organization cannot act quickly to take advantage of opportunities or to optimize the use of resources across the organization.
- It is often unable to make effective decisions about changes, due to limited visibility and many hidden agendas.
- Practices can also become silos. Many organizations have implemented practices such as organizational change management or incident management without clear interfaces with other practices.
- The exchange of information between practices should be triggered at key points in the workflow, and is essential to the proper functioning of the organization.

The architecture of the ITIL SVS specifically enables flexibility and discourages siloed working.



- The purpose of the SVS is to ensure that the organization continually co-creates value with all stakeholders through the use and management of products and services
- The structure of the SVS is shown above.
 - The left side of the figure shows opportunity and demand feeding into the SVS from both internal and external sources.
 - The right side shows value created for the organization, its customers, and other stakeholders
- The service value chain activities and the practices in the SVS do not form a fixed, rigid structure. Rather, they can be combined in multiple value streams to address the needs of the organization in a variety of scenarios
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 4.1, Pg 37



4.2 Inputs of the SVS

- The key inputs to the SVS are opportunity and demand, it trigger activities within the SVS
- Opportunities represent options or possibilities to add value for stakeholders or otherwise improve the organization.
- Demand is the need or desire for products and services among internal and external consumers.

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4.2 Inputs of the SVS

- Opportunity and demand are always entering into the system, but the organization does not automatically accept all opportunities or satisfy all demand



4.3 Outcome of the SVS

- The outcome of the SVS is value
- The perceived benefits, usefulness, and importance of something
- The ITIL SVS can enable the creation of many different types of value for a wide group of stakeholders

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4.3 Outcome of the SVS



4.4 Components of the SVS

Guiding principles	<ul style="list-style-type: none">• Recommendations that can guide an organization in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure
Governance	<ul style="list-style-type: none">• The means by which an organization is directed and controlled
Service value chain	<ul style="list-style-type: none">• A set of interconnected activities that an organization performs to deliver a valuable product or service to its consumers and to facilitate value realization
Practices	<ul style="list-style-type: none">• Sets of organizational resources designed for performing work or accomplishing an objective
Continual improvement	<ul style="list-style-type: none">• A recurring organizational activity performed at all levels to ensure that an organization's performance continually meets stakeholders' expectations

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4.4 Components of the SVS

- With these components, the ITIL SVS supports many work approaches, such as Agile, DevOps and Lean, as well as traditional process and project management, with a flexible value-oriented operating model.
- An organization can take any number of forms, including, but not limited to, sole trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or any part or combination thereof, whether incorporated or not, and be either public or private.
- This means that the scope of the SVS can be a whole organization or a smaller subset of that organization.

Module 5: The Guiding Principles

- 5.1 GUIDING PRINCIPLE OVERVIEW
- 5.2 FOCUS ON VALUE
- 5.3 START WHERE YOU ARE
- 5.4 PROGRESS ITERATIVELY WITH FEEDBACK
- 5.5 COLLABORATE & PROMOTE VISIBILITY
- 5.6 THINK & WORK HOLISTICALLY
- 5.7 KEEP IT SIMPLE & PRACTICAL
- 5.8 OPTIMIZE & AUTOMATE

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Module 5 The Guiding Principles



5.1 Guiding Principle Overview

A guiding principle is a recommendation that guides an organization in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure.

A guiding principle is universal and enduring.

- The guiding principles embody the core messages of ITIL and of service management in general, supporting successful actions and good decisions of all types and at all levels
- They can be used to guide organizations in their work as they adopt a service management approach and adapt ITIL guidance to their own specific needs and circumstances

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5.1 Guiding Principle Overview

- The guiding principles encourage and support organizations in continual improvement at all levels.
- These principles are also reflected in many other frameworks, methods, standards, philosophies, and/or bodies of knowledge, such as Lean, Agile, DevOps, and COBIT. This allows organizations to effectively integrate the use of multiple methods into an overall approach to service management.
- The guiding principles are applicable to practically any initiative and to all relationships with stakeholder groups



5.1 Guiding Principle Overview

Focus on value

Start where you are

Progress iteratively with feedback

Collaborate and promote visibility

Think and work holistically

Keep it simple and practical

Optimize and automate

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- The ITIL guiding principles interact with and depend upon each other
- Organizations should not use just one or two of the principles, but should consider the relevance of each of them and how they apply together
- Not all principles will be critical in every situation, but they should all be reviewed on each occasion to determine how appropriate they are



5.2 Focus on Value

All activities conducted by the organization should link back, directly or indirectly, to value for itself, its customers, and other stakeholders

When Focusing on Value, we must know,

- Who is the service consumer?
- The consumer's perspectives of value
- The customer experience (CX) or user experience (UX)

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5.2 Focus on Value

When focusing on value, the first step is to know who is being served

- Who the service consumer is & who the key stakeholders are (customers, users, sponsors)
- The service provider should consider who will receive value from what is being delivered or improved

Next the service provider must understand what is truly of value to service consumer

- Why the consumer uses the services
- What the services help them to do
- How the services help them achieve their goals
- The role of cost/financial consequences for the service consumer
- The risks involved for the service consumer
- How these values may change over time & in different circumstances

Next is the experience that service consumers have when they interact with the service and the service provider

- CX can be defined as the entirety of the interactions a customer has with an organization and its products.
- This experience can determine how the customer feels about the organization and its products and services.
- CX is both objective and subjective.



5.2 Focus on Value

Include focus on value in every step of any improvement initiative

Know how service consumers use each service

To apply 'Focus on Value' Principle

Encourage a focus on value among all staff

Focus on value during normal operational activity as well as during improvement

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5.3 Start Where you are

Do not start from scratch and build something new without considering what is already available to be leveraged.

- In any improvement, there can be great temptation to remove what has been done in the past and build something completely new
- This approach can be extremely wasteful, in terms of time, the loss of existing services, processes, people, and tools that could have significant value in the improvement effort
- There is likely to be a great deal in the current services, processes, programs, projects, and people that can be used to create the desired outcome

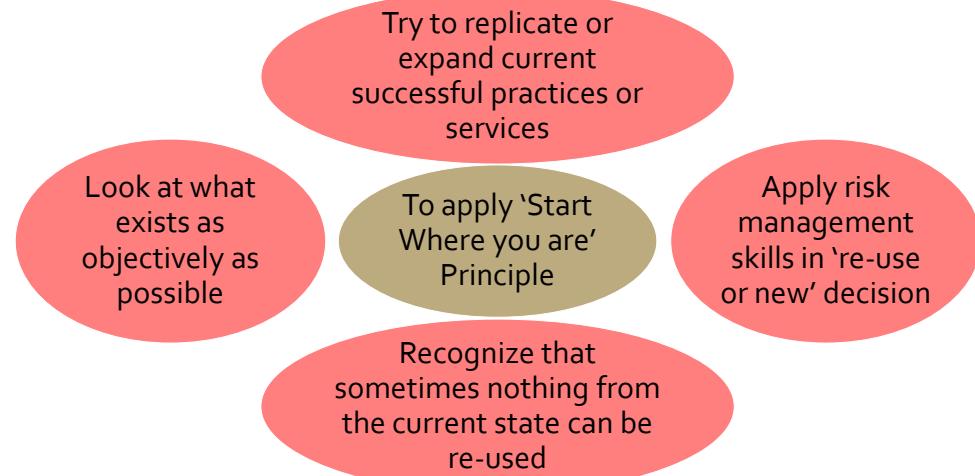
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5.3 Start Where you are

- Assess where you are
 - Services and methods already in place should be measured and/or observed directly to properly understand their current state and what can be re-used from them.
 - Decisions on how to proceed should be based on information that is as accurate as possible
 - Within organizations there is frequently a discrepancy between reports and reality. This is due to the difficulty of accurately measuring certain data, or the unintentional bias or distortion of data that is produced through reports
- The role of measurement is important to this principle
 - Organizations should consider a variety of techniques to develop knowledge of the environments in which they work
 - Although it is true that some things can only be understood through measuring their effect, direct observation should always be the preferred option
 - Act of measuring can sometimes affect the results, making them inaccurate



5.3 Start Where you are



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5.4 Progress Iteratively with Feedback

Resist the temptation to do everything at once.

Even huge initiatives must be accomplished iteratively.

By organizing work into smaller, manageable sections that can be executed and completed in a timely manner, the focus on each effort will be sharper and easier to maintain

- Working in a timeboxed, iterative manner with Feedback loops allows for,
 - greater flexibility
 - faster response to customer needs
 - ability to discover & respond to failure earlier
 - overall improvement in quality

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5.4 Progress Iteratively with Feedback

- A major improvement initiative or programme may be organized into several significant improvement initiatives, and each of these may, in turn, comprise smaller improvement efforts.
- The overall initiative or programme, as well as its component iterations, must be continually re-evaluated and potentially revised to reflect any changes in circumstances and ensure that the focus on value has not been lost.
- This re-evaluation should make use of a wide range of feedback channels and methods to ensure that the status of the initiative and its progress are properly understood.



5.4 Progress Iteratively with Feedback

Improvement Iteration,

- Can be sequential or simultaneous, based on the requirements
- Should be both manageable and managed
- Ensure that tangible results are returned in a timely manner
- Can be built upon to create further improvement

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5.4 Progress Iteratively with Feedback



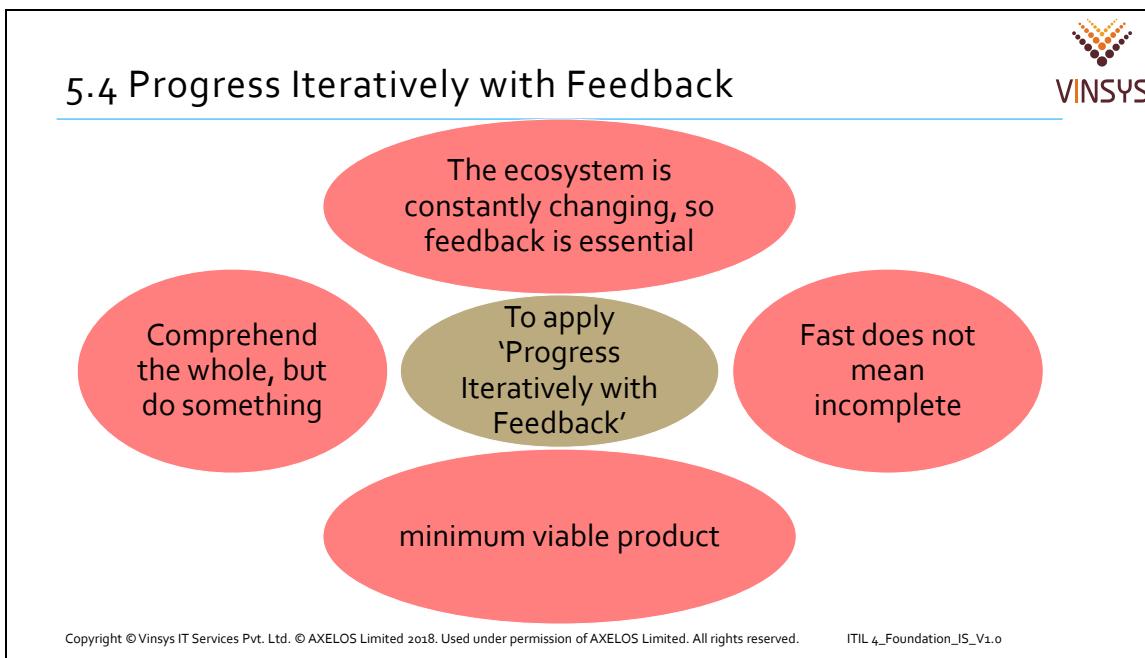
A feedback loop is a situation where part of the output of an activity is used for new input.

- Seeking and using feedback before, throughout, and after each iteration will ensure that actions are focused and appropriate, even in changing circumstances
- In a well-functioning organization, feedback is actively collected and processed along the value chain

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Well-constructed feedback mechanisms facilitate understanding of:

- end user and customer perception of the value created
- the efficiency and effectiveness of value chain activities
- the effectiveness of service governance as well as management controls
- the interfaces between the organization and its partner and supplier network
- the demand for products and services
- feedback loop helps participants to understand where work comes from, where their outputs go, and how their actions and outputs affect the outcomes, which in turn enables them to make better decisions.





5.5 Collaborate & Promote Visibility

When initiatives involve the right people in the correct roles, efforts benefit from better buy-in, more relevance and increased likelihood of long-term success

- Cooperation and collaboration are better than isolated work (silo activity)
- Creative solutions, enthusiastic contributions, and important perspectives can be obtained from unexpected sources, so inclusion is generally a better policy than exclusion

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5.5 Collaborate & Promote Visibility

- Working together in a way that leads to real accomplishment requires
 - information
 - understanding and
 - trust
- Work and its results should be made visible, hidden agendas should be avoided, and information should be shared to the greatest degree possible.
- The more people are aware of what is happening and why, the more they will be willing to help.
- When improvement activity occurs in relative silence, or with only a small group being aware of the details, assumptions and rumours can prevail.
 - Resistance to change will often arise as staff members speculate about what is changing and how it might impact them



5.5 Collaborate & Promote Visibility

Collaboration examples within some stakeholder groups

- Service Provider & Customer
- Developer & other Internal Teams (DevOps)
- Organization & Supplier
- Relationship Manager & Service Consumer
- Customer collaborating amongst themselves to create shared understanding

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- Identifying and managing all the stakeholder groups that an organization deals with is important, as the people and perspectives necessary for successful collaboration can be sourced within these stakeholder groups
- Communication for improvement
 - The contribution to improvement of each stakeholder group at each level should be understood
 - It is also important to define the most effective methods to engage with them
 - Depending on the service and the relationship between the service provider and the service consumer, the expectations about the level and type of collaboration can vary significantly
 - Some contributors may be involved at a very detailed level, while others can simply be reviewers or approvers



5.5 Collaborate & Promote Visibility

- Consequences of Poor Visibility
 - Risk of creating the impression that the work is not a priority
 - Perception will be that the change is not important
 - Improvement work may seem to be a low-priority against daily activity
 - Leads to poor decision-making
- To avoid poor visibility issues organization must,
 - Understand the flow of work in progress
 - Identify bottlenecks, as well as excess capacity
 - Uncover waste

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- It is important to involve and address the needs of stakeholders at all levels
- Leaders at various levels should also provide appropriate information relating to the improvement work in their own communications to others.
- Together, these actions will serve to reinforce what is being done, why it is being done, and how it relates to the stated vision, mission, goals, and objectives of the organization.
- Determining the type, method, and frequency of such messaging is one of the central activities related to communication



5.5 Collaborate & Promote Visibility

Collaboration does not mean consensus

Selecting the right method & message for each audience

To apply 'Collaborate & Promote Visibility'

Communicate in a way the audience can hear

Decisions can only be made on visible data

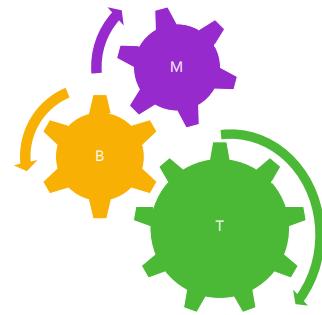
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5.6 Think & Work Holistically

Holistic approach to service management includes establishing an understanding of how all the parts of an organization work together in an integrated way
Services are delivered to internal and external service consumers through the coordination and integration of the four dimensions of service management



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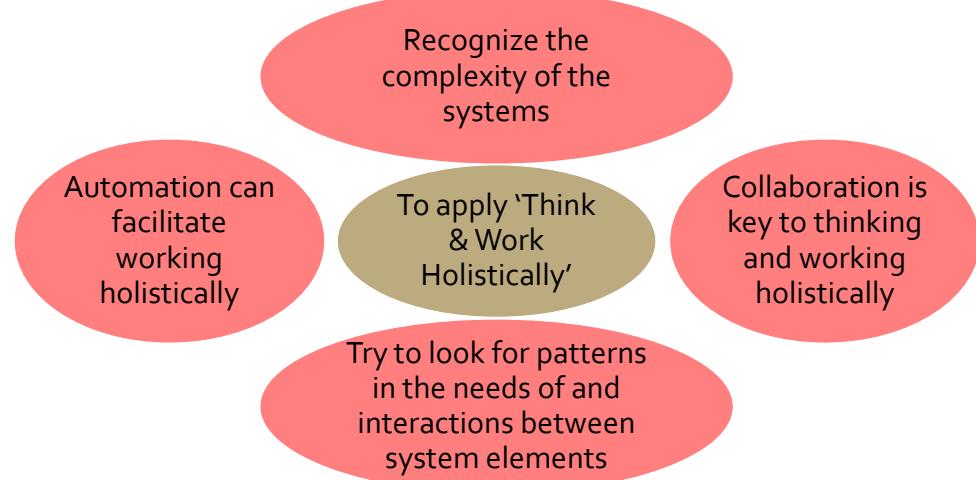
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5.6 Think & Work Holistically

- No service, practice, process, department, or supplier stands alone.
- The outputs that the organization delivers to itself, its customers, and other stakeholders will suffer unless it works in an integrated way to handle its activities as a whole, rather than as separate parts.
- All the organization's activities should be focused on the delivery of value
- In a complex system, the alteration of one element can impact others and, where possible, these impacts need to be identified, analysed and planned for



5.6 Think & Work Holistically



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5.7 Keep it Simple & Practical

Always use the minimum number of steps to accomplish an objective.

Outcome-based thinking should be used to produce practical solutions that deliver valuable outcomes.

If a process, service, action, or metric fails to provide value or produce a useful outcome, then eliminate it.

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5.7 Keep it Simple & Practical

Although this principle may seem obvious, it is frequently ignored, resulting in overly complex methods of work that rarely maximize outcomes or minimize cost.



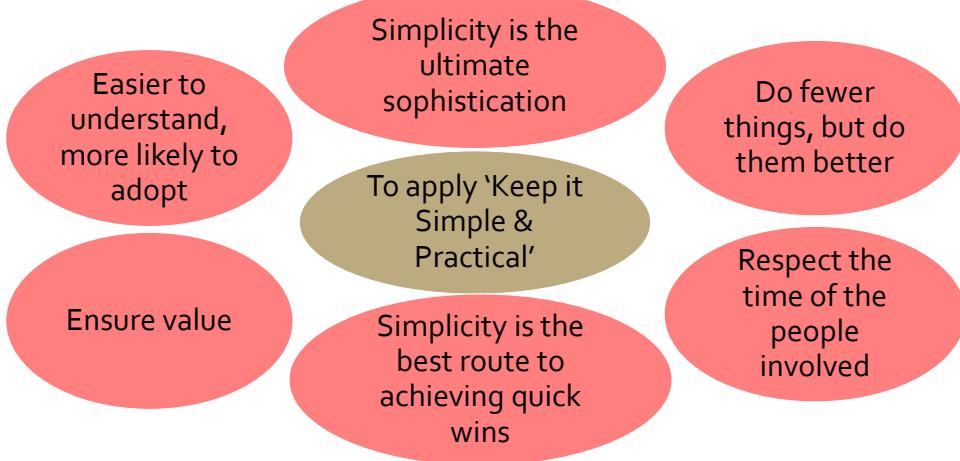
5.7 Keep it Simple & Practical

- Trying to provide a solution for every exception will often lead to over-complication
- Better to start with an uncomplicated approach and then carefully add controls, activities, or metrics etc.
- When designing or analysing, understand first exactly how it contributes to value creation
- Establish and communicate a holistic view of the organization's work
- Be mindful of conflicting objectives

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5.7 Keep it Simple & Practical



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5.8 Optimize & Automate

Optimization means to make something as effective and useful as it needs to be. Before an activity can be effectively automated, it should be optimized to whatever degree is possible and reasonable

- Organizations must maximize the value of the work carried out by their human and technical resources
- Technology can help organizations to scale up and take on frequent and repetitive tasks, allowing human resources to be used for more complex decision-making

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5.8 Optimize & Automate

- However, technology should not always be relied upon without the capability of human intervention, as automation for automation's sake can increase costs and reduce organizational robustness and resilience
- It is essential that limits are set on the optimization of services and practices, as they exist within a set of constraints which may include financial limitations, compliance requirements, time constraints, and resource availability



5.8 Optimize & Automate

Understand and agree the context in which the proposed optimization exists



Assess the current state of the proposed optimization



Agree what the future state and priorities of the organization should be, focusing on simplification and value



Ensure the optimization has the appropriate level of stakeholder engagement and commitment



Execute the improvements in an iterative way



Continually monitor the impact of optimization

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- There are many ways in which practices and services can be optimized
- Regardless of the specific techniques, the path to optimization follows these high-level steps shown above



5.8 Optimize & Automate

Automation is the use of technology to perform a step or series of steps correctly and consistently with limited or no human intervention

Automation could also mean the standardization and streamlining of manual tasks, to allow decisions to be made 'automatically'

- Efficiency can be greatly increased
- Can help save the organization costs, reduce human error, and improve employee experience
- Allows human resources to be used for more complex decision-making

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- Opportunities for automation can be found across the entire organization
- Looking for opportunities to automate standard and repeating tasks can help save the organization costs, reduce human error, and improve employee experience.



5.8 Optimize & Automate

Use the other guiding principles like,

Progress iteratively with feedback; Keep it simple and practical; Focus on value; Start where you are

Define your metrics

To apply
'Optimize &
Automate'

Simplify and/or optimize before automating

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Module 6: Service Value Chain

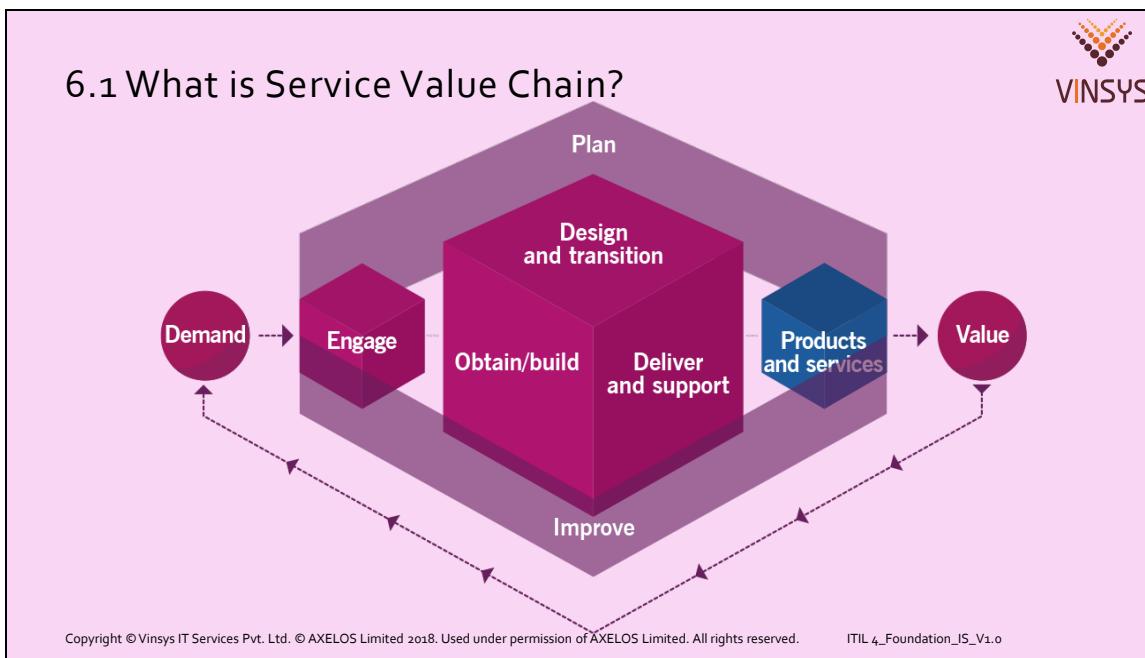
- 6.1 WHAT IS SERVICE VALUE CHAIN?
- 6.2 VALUE CHAIN INTERACTION WITH VALUE STREAMS & PRACTICES
- 6.3 VALUE CHAIN ACTIVITY: PLAN
- 6.4 VALUE CHAIN ACTIVITY: IMPROVE
- 6.5 VALUE CHAIN ACTIVITY: ENGAGE
- 6.6 VALUE CHAIN ACTIVITY: DESIGN & TRANSITION
- 6.7 VALUE CHAIN ACTIVITY: OBTAIN/BUILD
- 6.8 VALUE CHAIN ACTIVITY: DELIVER & SUPPORT

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Module 6 Service Value Chain



6.1 What is Service Value Chain?

The six value chain activities are:

- Plan
- Improve
- Engage
- Design and transition
- Obtain/build
- Deliver and support

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Fig 4.2, Pg 58



6.1 What is Service Value Chain?

The central element of the SVS is the service value chain, an operating model which outlines the key activities required to respond to demand and facilitate value realization through the creation and management of products and services

- These 6 Service Value chain activities represent the steps an organization takes in the creation of value.
- Each activity transforms inputs into outputs.
- All the activities are interconnected, with each activity receiving and providing triggers for further action

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- To convert inputs into outputs, the value chain activities use different combinations of ITIL practices, drawing on internal or third-party resources, processes, skills, and competencies as required.
 - For example, the engage activity might draw on supplier management, service desk management, relationship management, and service request management to respond to new demands for products and services, or information from various
- Regardless of which practices are deployed, there are some common rules when using the service value chain:
 - All incoming and outgoing interactions with parties external to the value chain are performed via engage
 - All new resources are obtained through obtain/build
 - Planning at all levels is performed via plan
 - Improvements at all levels are initiated and managed via improve.

6.2 Value Chain interaction with Value Streams & Practices



- To carry out a certain task or respond to a particular situation, organizations create service value streams
- These Value streams are specific combinations of activities and practices, and each one is designed for a particular scenario
- Once designed, value streams should be subject to continual improvement
- Ex. A value stream might be created for a situation where a user of a service needs an incident to be resolved; and it will provide a complete guide to the activities, practices, and roles involved

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6.2 Value Chain interaction with Value Streams & Practices



6.3 Value Chain Activity: Plan

The purpose of 'Plan' value chain activity is:

To ensure a shared understanding of the vision, current status, and improvement direction for all four dimensions and all products and services across the organization

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6.3 Value Chain Activity: Plan



6.4 Value Chain Activity: Improve

The purpose of 'Improve' value chain activity is:

To ensure continual improvement of products, services, and practices across all value chain activities and the four dimensions of service management

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6.4 Value Chain Activity: Improve



6.5 Value Chain Activity: Engage

The purpose of 'Engage' value chain activity is:

To provide a good understanding of stakeholder needs, transparency, and continual engagement and good relationships with all stakeholders

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6.5 Value Chain Activity: Engage



6.6 Value Chain Activity: Design & Transition

The purpose of 'Design & Transition' value chain activity is:

To ensure that products and services continually meet stakeholder expectations for quality, costs, and time to market

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6.6 Value Chain Activity: Design & Transition



6.7 Value Chain Activity: Obtain/Build

The purpose of 'Obtain/Build' value chain activity is:

To ensure that service components are available when and where they are needed, and meet agreed specifications

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6.7 Value Chain Activity: Obtain/Build



6.8 Value Chain Activity: Deliver & Support

The purpose of 'Deliver & Support' value chain activity is:

To ensure that services are delivered and supported according to agreed specifications and stakeholders' expectations

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6.8 Value Chain Activity: Deliver & Support

Module 7: ITIL Management Practices

7.1 INTRODUCTION TO ITIL MANAGEMENT PRACTICES (34)

7.2 GENERAL MANAGEMENT PRACTICES (4/14)

7.3 SERVICE MANAGEMENT PRACTICES (10/17)

7.4 TECHNICAL MANAGEMENT PRACTICES (1/3)

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Module 7 ITIL Management Practices

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7.1 Introduction to ITIL Management Practices (34)

A management practice is a set of organizational resources designed for performing work or accomplishing an objective.

- Each ITIL practice supports multiple service value chain activities, providing a comprehensive and versatile toolset for ITSM practitioners
- Each ITIL practice includes resources based on the 4 dimensions of service management

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7.1 Introduction to ITIL Management Practices



7.1 Introduction to ITIL Management Practices

The origins of the practices are as follows:

- General management practices:
 - have been adopted and adapted for service management from general business management domains.
- Service management practices:
 - have been developed in service management and ITSM industries.
- Technical management practices:
 - have been adapted from technology management domains for service management purposes by expanding or shifting their focus from technology solutions to IT services

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7.1 Introduction to ITIL Management Practices (15/34)

General Management Practices (4/14)	Service Management Practices (10/17)	Technical Management Practices (1/3)
Architecture management	Availability management	Deployment management (BL1)
Continual improvement (BL2)	Business analysis	Infrastructure and platform management
Information security management (BL1)	Capacity and performance management	Software development and management
Knowledge management	Change control (BL2)	
Measurement and reporting	Incident management (BL2)	
Organizational change management	IT asset management (BL1)	
Portfolio management	Monitoring and event management (BL1)	
Project management	Problem management (BL2)	
Relationship management (BL1)	Release management (BL1)	
Risk management	Service catalogue management	
Service financial management	Service configuration management (BL1)	
Strategy management	Service continuity management	
Supplier management (BL1)	Service design	
Workforce and talent management	Service desk (BL2)	
	Service level management (BL2)	
	Service request management (BL2)	
	Service validation and testing	

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BL1: Bloom's Level 1

- ‘Recall’/‘Define’
- Basic recall and recognition

BL2: Bloom's Level 2

- ‘Describe’/‘Explain’
- Understanding/Comprehension



7.2 General Management Practices (4/14)

General management practices have been adopted and adapted for service management from general business management domains

We may find these practices in any type of organization

General Management Practices (4/14)

- Architecture management
- Continual improvement (BL2)**
- Information security management (BL1)**
- Knowledge management
- Measurement and reporting
- Organizational change management
- Portfolio management
- Project management
- Relationship management (BL1)**
- Risk management
- Service financial management
- Strategy management
- Supplier management (BL1)**
- Workforce and talent management

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7.2 General Management Practices



7.2.1 Continual improvement (BL2)

The purpose of the continual improvement practice is to align the organization's practices and services with changing business needs through the ongoing improvement of products, services, and practices, or any element involved in the management of products and services

- Develop improvement-related methods and techniques and the propagation of a continual improvement culture across the organization, in alignment with the organization's overall strategy
- The commitment to and practice of continual improvement must be embedded into every fibre of the organization

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7.2.1 Continual improvement (BL2)

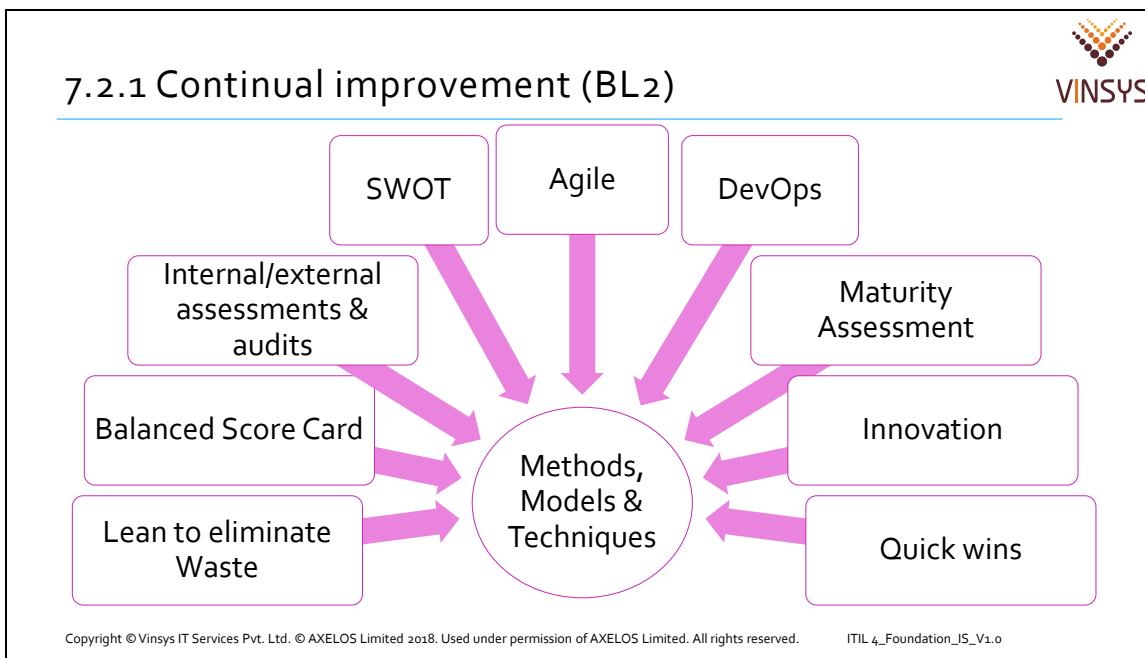


7.2.1 Continual improvement (BL2)

Key activities that include in Continual Improvement:

- Encouraging it across the organization
- Securing time and budget for it
- Identifying and logging improvement opportunities
- Assessing and prioritizing improvement opportunities
- Making business cases for improvement action
- Planning and implementing it
- measuring and evaluating improvement results
- coordinating it across the organization

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7.2.1 Continual improvement (BL2)

Highest levels/Leaders:

- Responsible for embedding continual improvement into the way that people think and work.
- Without their leadership and visible commitment to continual improvement, attitudes, behaviour, and culture at all levels will not be evolve

Continual improvement team:

- a small team dedicated full-time to lead improvements
- Advocate, coordinate, guide, mentor, help others for improvement practices across the organization

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- Continual improvement is everyone's responsibility.
- To ensure that this is more than a good intention, it is wise to include contribution to continual improvement in all job descriptions and every employee's objectives, as well as in contracts with external suppliers and contractors



7.2.1 Continual improvement (BL2)

Everyone in the Organization:

- Continual improvement is everyone's responsibility
- Everyone must have active participation in continual improvement as a core part of their job

Partners & Suppliers:

- Contract should include details of how they will measure, report on, and improve their services
- Contract should specify data required from supplier for fact-based decision-making for improvement

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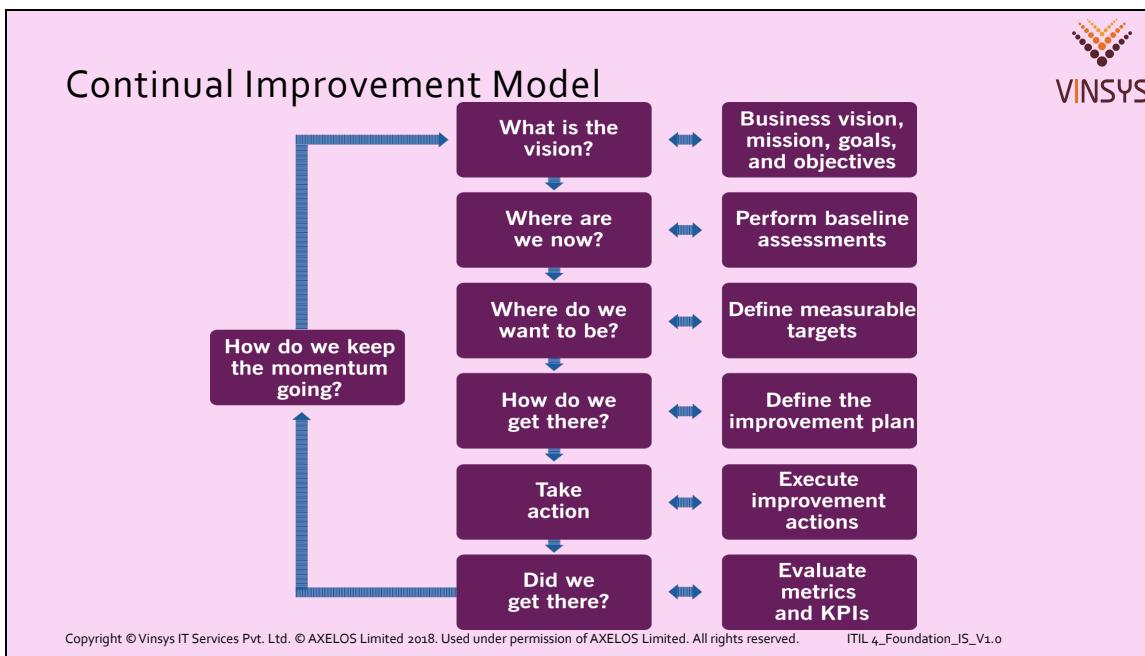


7.2.1 Continual improvement (BL2)

To track and manage improvement ideas from identification through to final action, organizations use a database or structured document called a continual improvement register (CIR)

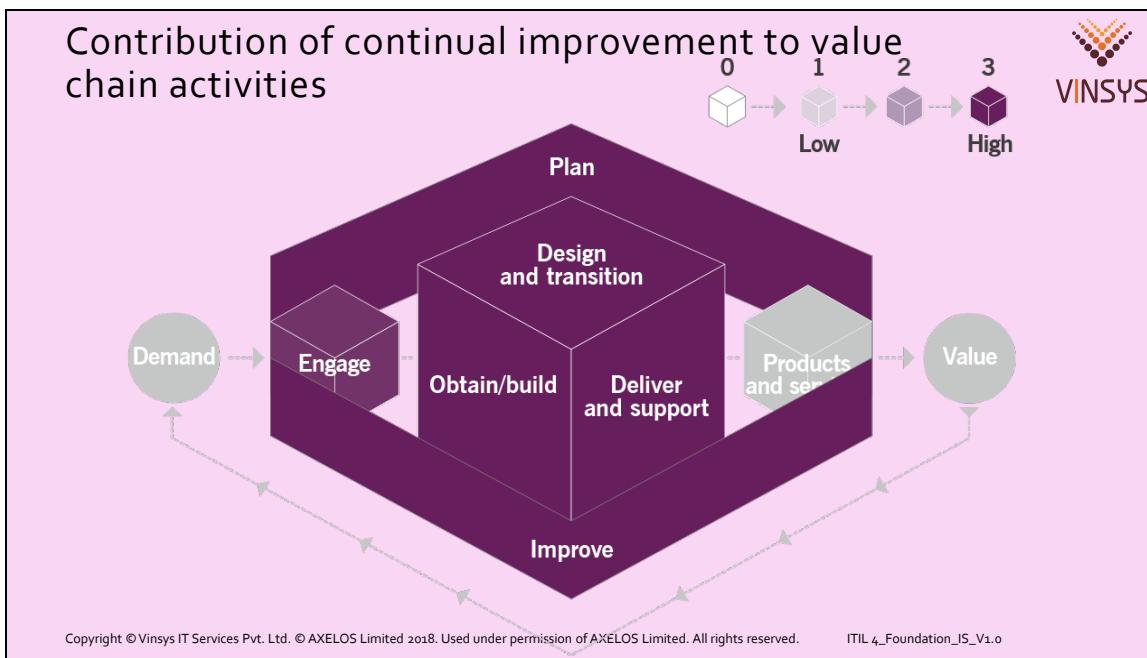
- There can be more than one CIR in an organization, as individual, team, departmental, business unit, and organizational levels OR Sometimes a single master CIR
- Ideas are captured, documented, assessed, prioritized, and appropriately acted upon

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Continual Improvement Model

- The ITIL continual improvement model can be used as a high-level guide to support improvement initiatives
- Use of the model increases the likelihood that ITSM initiatives will be successful, puts a strong focus on customer value, and ensures that improvement efforts can be linked back to the organization's vision
- The model supports an iterative approach to improvement, dividing work into manageable pieces with separate goals that can be achieved incrementally
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 4.3, Pg 66



This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication
 Fig 5.2, Pg 82

Contribution of continual improvement to value chain activities



Contribution of continual improvement practice in Service Value Chain:

- Plan:
 - This practice is applied to planning activities, methods, and techniques to make sure they are relevant to the organization's current objectives and context
- Improve:
 - This practice is key to Improve value chain activity. It structures resources and activities, enabling improvement at all levels of the organization and the SVS
- Engage, design and transition, obtain/build, and deliver and support:
 - Each of these value chain activities is subject to continual improvement, and the continual improvement practice is applied to all of them

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7.2.2 Information Security Management (BL1)



The purpose of the information security management practice is to protect the information needed by the organization to conduct its business

- This includes understanding and managing risks to the
 - Confidentiality
 - Integrity
 - Availability
 - Authentication
 - Non-repudiation

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7.2.2 Information Security Management (BL1)

The required security is established by means of policies, processes, behaviors, risk management, and controls, which must maintain a balance between:

- Prevention: Ensuring that security incidents don't occur
- Detection: Rapidly and reliably detecting incidents that can't be prevented
- Correction: Recovering from incidents after they are detected



7.2.3 Relationship management (BL1)

The purpose of the relationship management practice is to establish and nurture the links between the organization and its stakeholders at strategic and tactical levels.

- It includes the identification, analysis, monitoring, and continual improvement of relationships with and between stakeholders

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7.2.3 Relationship management (BL1)



7.2.4 Supplier management (BL1)

The purpose of the supplier management practice is to ensure that the organization's suppliers and their performances are managed appropriately to support the seamless provision of quality products and services.

- It includes creating closer, more collaborative relationships with key suppliers to uncover and realize new value and reduce the risk of failure

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7.2.4 Supplier management (BL1)

7.3 Service Management Practices (10/17)



Service management practices have been developed in service management and ITSM industries

Service Management Practices (10/17)

- Availability management
- Business analysis
- Capacity and performance management
- Change control (BL2)**
- Incident management (BL2)**
- IT asset management (BL1)**
- Monitoring and event management (BL1)**
- Problem management (BL2)**
- Release management (BL1)**
- Service catalogue management
- Service configuration management (BL1)**
- Service continuity management
- Service design
- Service desk (BL2)**
- Service level management (BL2)**
- Service request management (BL2)**
- Service validation and testing

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7.3 Service Management Practices (10/17)



7.3.1 Service level management (BL2)

The purpose of the service level management practice is to set clear business-based targets for service levels, and to ensure that delivery of services is properly assessed, monitored, and managed against these targets

- Service level: One or more metrics that define expected or achieved service quality
- Service level agreement (SLA): A documented agreement between a service provider and a customer that identifies both services required and the expected level of service

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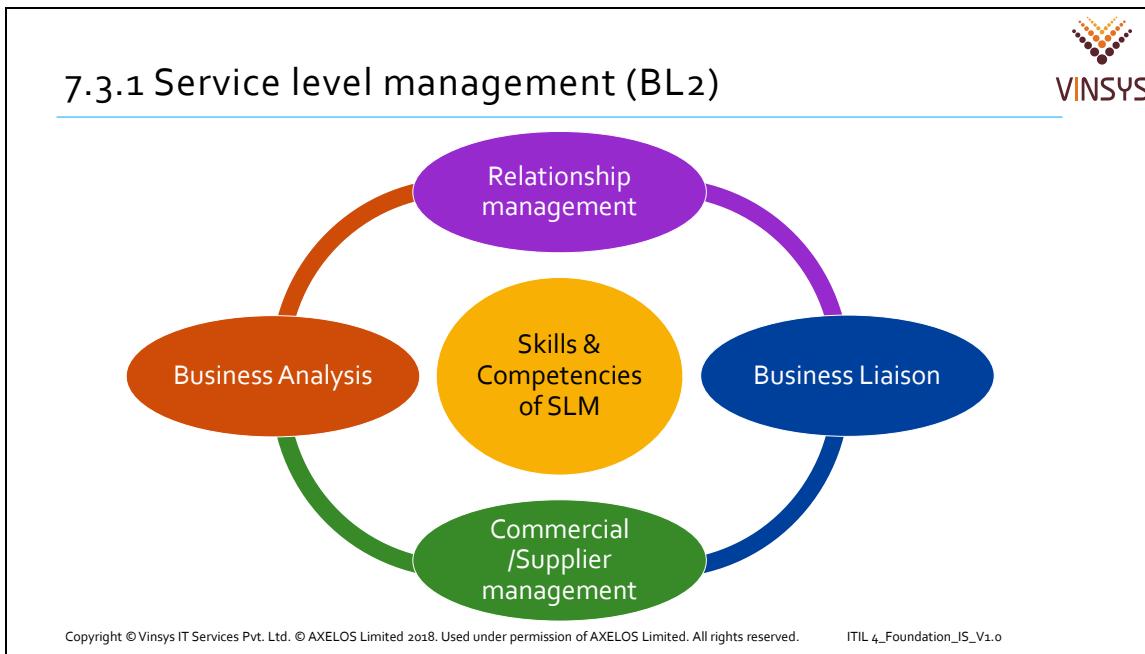
7.3.1 Service level management (BL2)



7.3.1 Service level management (BL2)

- Service level management provides the end-to-end visibility of the organization's services.
 - It establishes a shared view of the services and target service levels with customers
 - It ensures the organization meets the defined service levels through the collection, analysis, storage, and reporting of the relevant metrics
 - It performs service reviews to ensure that the current set of services continues to meet the needs of the organization and its customers needs
 - It captures and reports on service issues, including performance against defined service levels

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The practice requires pragmatic focus on the whole service and not simply its constituent parts; for example, simple individual metrics (such as percentage system availability) should not be taken to represent the whole service



7.3.1 Service level management (BL2)

SLA is a tool to measure the performance of services from the customer's point of view, and should be agreed in the wider business context.

Key requirements for successful SLAs:

- Related to a defined 'service' in the service catalogue
- Should relate to defined outcomes and not simply operational metrics
- Should reflect an 'agreement', i.e. engagement and discussion between the service provider and the service consumer
- Must be simply written and easy to understand and use for all parties

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- SLA must be related to a defined 'service' in the service catalogue; otherwise they are simply individual metrics without a purpose, that do not provide adequate visibility or reflect the service perspective.
- SLA should relate to defined outcomes and not simply operational metrics. This can be achieved with balanced bundles of metrics, such as customer satisfaction and key business outcomes.
- SLA should reflect an 'agreement', i.e. engagement and discussion between the service provider and the service consumer. It is important to involve all stakeholders, including partners, sponsors, users, and customers.
- SLA must be simply written and easy to understand and use for all parties

The 'watermelon SLA' effect:

In many cases, using single-system-based metrics as targets can result in misalignment and a disconnect between service partners regarding the success of the service delivery and the user experience. Ex. If SLA is based only on the % uptime of a service, it can be deemed to be successful by the provider, yet still miss out on significant business functionalities and outcomes which are important to the consumer.



7.3.1 Service level management (BL2)

- Service level management requires focus and effort to engage and listen to the requirements, issues, concerns, and daily needs of customers
- Engagement: needed to understand and confirm the actual ongoing needs and requirements of customers
- Listening: Important as a relationship-building and trust-building activity, to show customers that they are valued and understood

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Service level management requires focus and effort to engage and listen to the requirements, issues, concerns, and daily needs of customers:

- Engagement is needed to understand and confirm the actual ongoing needs and requirements of customers, not simply what is interpreted by the service provider or has been agreed several years before.
- Listening is important as a relationship-building and trust-building activity, to show customers that they are valued and understood. This helps to move the provider away from always being in ‘solution mode’ and to build new, more constructive partnerships

The activities of engaging and listening provide a great opportunity to build improved relationships and to focus on what really needs to be delivered. It also gives service delivery staff an experience-based understanding of the day-to-day work that is done with their technology, enabling them to deliver a more business-focused service



7.3.1 Service level management (BL2)

Service level management information sources:

- Customer engagement:
 - Initial listening, discovery, and information capture on base metrics, measurement, and ongoing progress discussions
 - Ask simple open ended questions
- Customer Feedback:
 - Surveys
 - Key Business-related measures
- Operational metrics
- Business metrics

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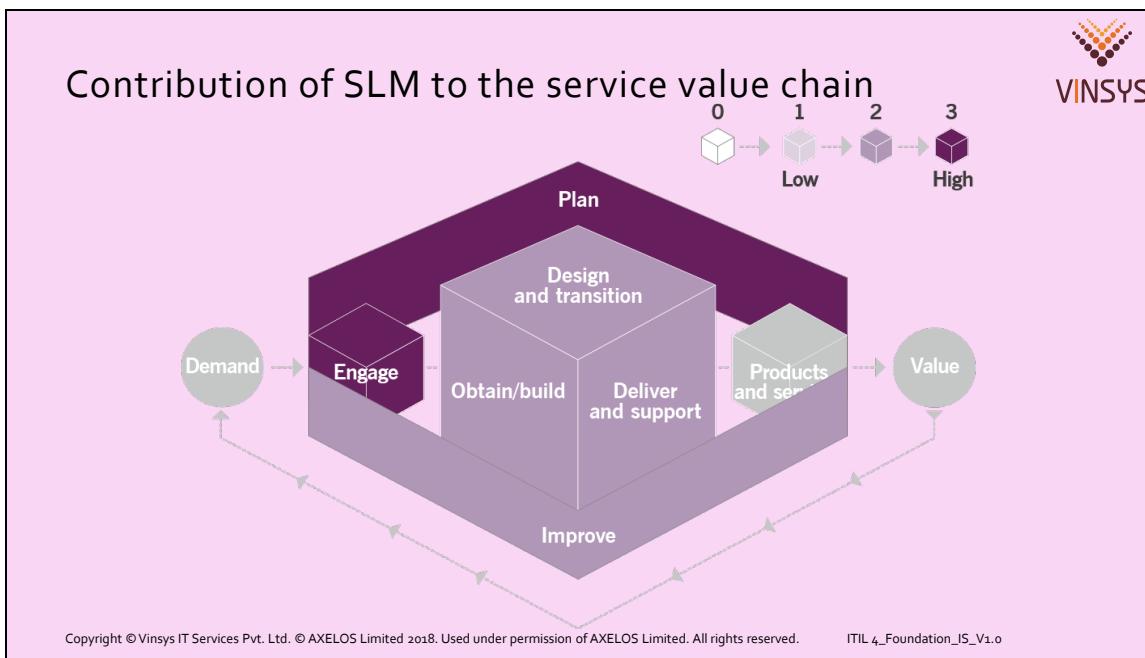
Simple Open ended questions:

- What does your work involve?
- How does technology help you?
- What are your key business times, areas, people, and activities?
- What differentiates a good day from a bad day for you?
- Which of these activities is most important to you?
- What are your goals, objectives, and measurements for this year?
- What is the best measure of your success?
- On what do you base your opinion and evaluation of a service or IT/technology?
- How can we help you more?

Key business-related measures: What the customer values as important. This could be a bundle of SLA metrics or a very specific business activity such as a sales transaction, project completion, or operational function such as getting an ambulance to the site of an accident within x minutes.

Operational metrics: These are the low-level indicators of various operational activities and may include system availability, incident response and fix times, change and request processing times, and system response times.

Business metrics: These can be any business activity that is deemed useful or valuable by the customer and used as a means of gauging the success of the service. These can vary from some simple transactional binary measures such as ATM or POS terminal availability during business hours (09:00–17:00 daily) or successful completion of business activities such as passenger check-in



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 Fig 5.34, Pg 155



Contribution of SLM to the service value chain

- Plan:
 - SLM supports planning of the product and service portfolio and service offerings with information about the actual service performance and trends.
- Improve:
 - Service feedback from users, as well as requirements from customers, can be a driving force for service improvement.
- Engage:
 - SLM ensures ongoing engagement with customers and users through feedback processing and continual service review.

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Contribution of SLM to the service value chain

- Design and transition:
 - The design and development of new and changed services receives input from this practice, both through interaction with customers and as part of the feedback loop in transition.
- Obtain/build:
 - SLM provides objectives for components and service performance, as well as for measurement and reporting capabilities of the products and services.
- Deliver and support:
 - SLM communicates service performance objectives to the operations and support teams and collects their feedback as an input for service improvement

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7.3.2 IT asset management (BL1)

IT Asset:

Any financially valuable component that can contribute to the delivery of an IT product or service

- The scope of IT asset management typically includes,
 - All software, hardware, networking, cloud services, and client devices etc.
 - It may also include non-IT assets such as buildings or information where these have a financial value and are required to deliver an IT service.
 - Can also include operational technology, including devices that are part of IoT

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7.3.2 IT asset management (BL1)



7.3.2 IT asset management (BL1)

The purpose of the IT asset management practice is to plan and manage the full lifecycle of all IT assets, to help the organization:

Maximize value

Control costs

Manage risks

Support decision-making about purchase, re-use, retirement, and disposal of assets

Meet regulatory and contractual requirements

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7.3.3 Service configuration management (BL1)

Configuration Item (CI):

Any component that needs to be managed in order to deliver an IT service.

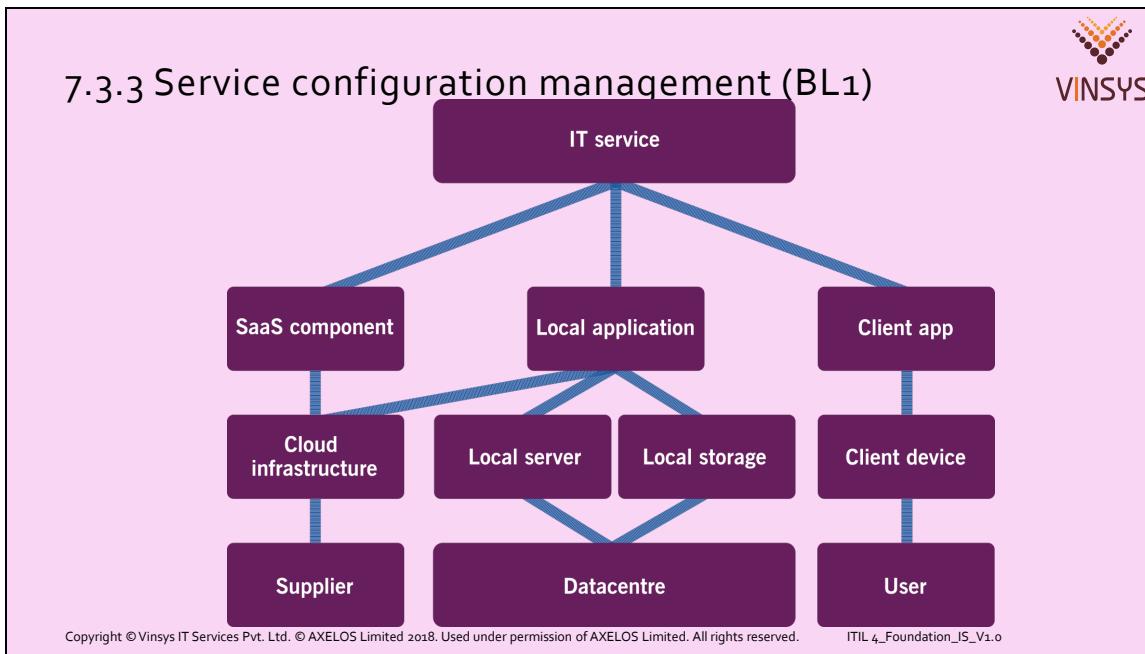
The purpose of the service configuration management practice is to ensure that accurate and reliable information about the configuration of services, and the CIs that support them, is available when and where it is needed.

This includes information on how CIs are configured and the relationships between them

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7.3.3 Service configuration management (BL1)

- Configuration management system: A set of tools, data, and information that is used to support service configuration management



- Service configuration management collects and manages information about a wide variety of CIs, typically including hardware, software, networks, buildings, people, suppliers, and documentation.
- Services are also treated as CIs, and configuration management helps the organization to understand how the many CIs that contribute to each service work together
- This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication Fig 5.29, Pg 140



7.3.4 Release management (BL1)

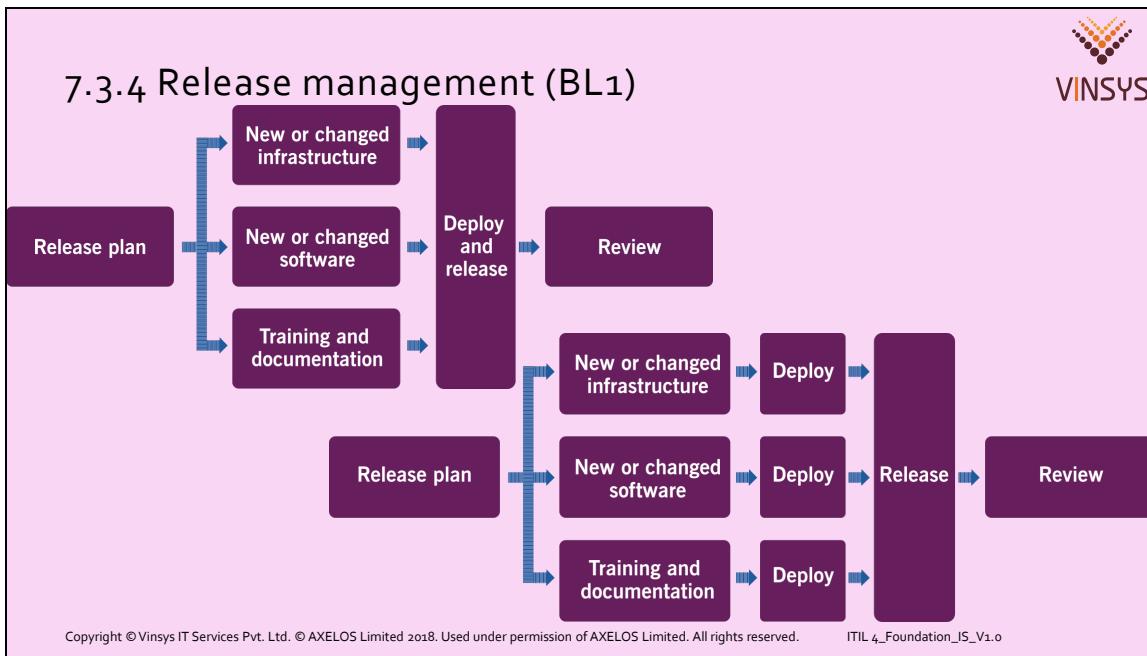
The purpose of the release management practice is to make new and changed services and features available for use

- A release may comprise,
 - many different infrastructure and application components that work together to deliver new or changed functionality.
 - may also include documentation, training (for users or IT staff)
 - updated processes or tools, and any other components that are required
- Each component of a release may be developed by the service provider or procured from a third party and integrated by the service provider

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7.3.4 Release management (BL1)

- Release: A version of a service or other configuration item, or a collection of configuration items, that is made available for use
- Releases can range in size from the very small, involving just one minor changed feature, to the very large, involving many components that deliver a completely new service.
- In either case, a release plan will specify the exact combination of new and changed components to be made available, and the timing for their release



Release management in

- Traditional/waterfall environment vs Agile/DevOps environment

This Text/Diagram sourced from AXELOS 'ITIL Foundation ITIL 4 edition' official publication
Fig 5.25 & 5.26, Pg 135



7.3.5 Monitoring and event management (BL1)

Event:

Any change of state that has significance for the management of a service or other configuration item (CI).

Events are typically recognized through notifications created by an IT service, CI, or monitoring tool

- The monitoring and event management practice manages events throughout their lifecycle to prevent, minimize, or eliminate their negative impact on the business

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7.3.5 Monitoring and event management (BL1)

7.3.5 Monitoring and event management (BL1)



The purpose of the monitoring and event management practice is to systematically observe services and service components, and record and report selected changes of state identified as events.

This practice identifies and prioritizes infrastructure, services, business processes, and information security events, and establishes the appropriate response to those events, including responding to conditions that could lead to potential faults or incidents

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- The monitoring part of the practice focuses on the systematic observation of services and the CIs that underpin services to detect conditions of potential significance. Monitoring should be performed in a highly automated manner, and can be done actively or passively.
- The event management part focuses on recording and managing those monitored changes of state that are defined by the organization as an event, determining their significance, and identifying and initiating the correct control action to manage them
- Monitoring is necessary for event management to take place, but not all monitoring results in the detection of an event



7.3.6 Incident management (BL2)

Incident:

An unplanned interruption to a service or reduction in the quality of a service

The purpose of the incident management practice is to minimize the negative impact of incidents by restoring normal service operation as quickly as possible

- Incident management can have an enormous impact on,
 - Customer and user satisfaction
 - How customers and users perceive the service provider

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7.3.6 Incident management (BL2)



Guidelines for effective Incident Management

- Logged and then managed
- Target resolution times are agreed, documented, & communicated to ensure that expectations are realistic
- Prioritized based on an agreed classification
- Resolved in a time that meets the customer/user expectations
- Organizations should design incident management practice to different types of incident
- Separate processes for managing major incidents, and for managing information security incidents

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- Incidents with a low impact must be managed efficiently to ensure that they do not consume too many resources.
- Incidents with a larger impact may require more resources and more complex management.
- Incidents with the highest business impact are resolved first
- There should be a formal process for logging and managing incidents. This process does not usually include detailed procedures for how to diagnose, investigate, and resolve incidents, but can provide techniques for making investigation and diagnosis more efficient



Guidelines for effective Incident Management

- Incident information should be stored in incident records
- Incident record links to related CIs, changes, problems, known errors, & other knowledge to enable quick & efficient diagnosis & recovery
- ITSM tools can provide automated matching of incidents to other incidents, problems, known errors, & can even provide intelligent analysis
- High level of collaboration within and between teams
 - Facilitates information-sharing, learning, efficient resolution
 - Ex. Service desk, technical support, application support, vendors etc.
 - **Swarming**

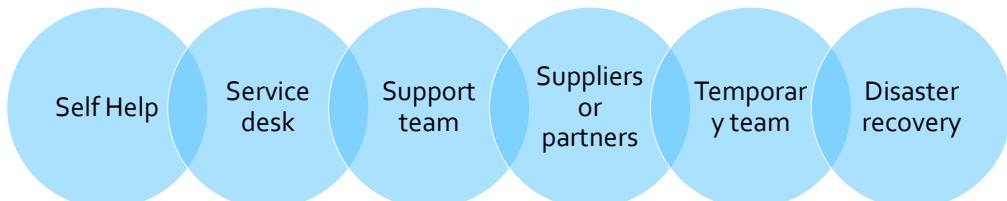
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• **Swarming:** This involves many different stakeholders working together initially, until it becomes clear which of them is best placed to continue and which can move on to other tasks.



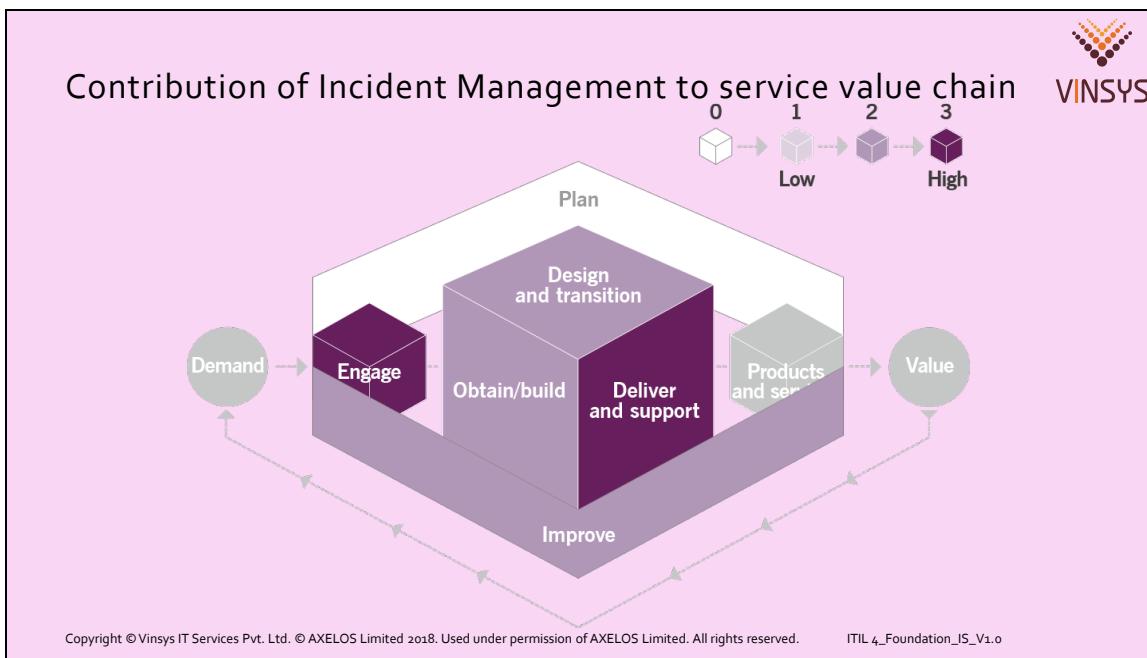
Guidelines for effective Incident Management

- Incidents may be diagnosed and resolved by people in many different groups, depending on the complexity of the issue or the incident type.
- All of these groups must understand the practice, & how they contribute to manage the value, outcomes, costs, and risks of the services provided



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- Third-party products and services that are used as components of a service require support agreements which align the obligations of the supplier with the commitments made by the service provider to customers.
- Incident management may require frequent interaction with these suppliers, and routine management of this aspect of supplier contracts is often part of the incident management practice.
- A supplier can also act as a service desk, logging and managing all incidents and escalating them to subject matter experts or other parties as required



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 Fig 5.20, Pg 123



Contribution of Incident Management to service value chain

- Improve:

- Incident records are a key input to improvement activities, and are prioritized both in terms of incident frequency and severity.

- Engage:

- Incidents are visible to users, and significant incidents are also visible to customers. Good incident management requires regular communication to understand the issues, set expectations, provide status updates, and agree that the issue has been resolved so the incident can be closed.

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Contribution of Incident Management to service value chain

- Design and transition:
 - Incidents may occur in test environments, as well as during service release and deployment. The practice ensures these incidents are resolved in a timely and controlled manner.
- Obtain/build:
 - Incidents may occur in development environments. Incident management practice ensures these incidents are resolved in a timely and controlled manner.
- Deliver and support:
 - Incident management makes a significant contribution to support. This value chain activity includes resolving incidents and problems.

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7.3.7 Problem management (BL2)

Problem:

A cause, or potential cause, of one or more incidents

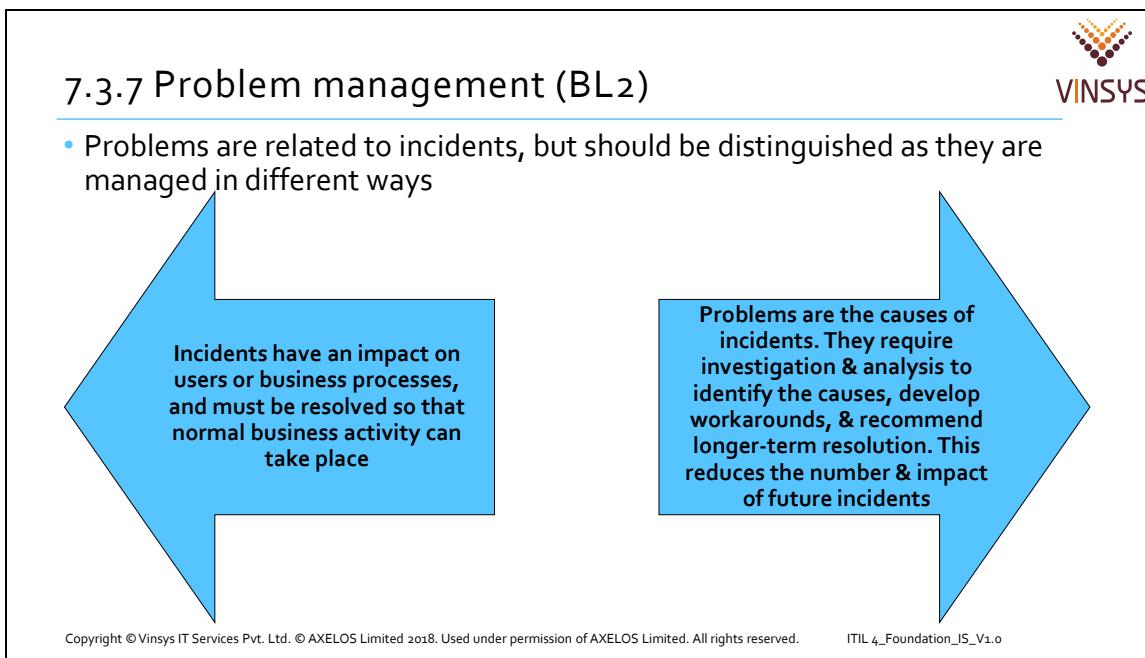
Known error:

A problem that has been analysed but has not been resolved.

The purpose of the problem management practice is to reduce the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors

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7.3.7 Problem management (BL2)



- Problem management activities are very closely related to incident management.
- The practices need to be designed to work together within the value chain.
- Activities from these two practices may complement each other (for example, identifying the causes of an incident is a problem management activity that may lead to incident resolution)
- They may also conflict (for example, investigating the cause of an incident may delay actions needed to restore service)

7.3.7 Problem management (BL2)



- Problem management involves three distinct phases

```
graph LR; A[Problem identification] --> B[Problem control]; B --> C[Error control]
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Fig 5.23, Pg 131



7.3.7 Problem management (BL2)

Problem identification activities identify and log problems.

- Trend analysis of incident records
- Detection of duplicate and recurring issues by users, service desk, and technical support staff
- During major incident management, identifying a risk that an incident could recur
- Analyzing information from suppliers and partners
- Analyzing information from internal software developers, test teams, and project teams.
- Other sources of information

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7.3.7 Problem management (BL2)

Problem control activities include problem analysis, and documenting workarounds and known errors

- Prioritize problem for analysis based on the risk that they pose
- Problem control should consider all contributory causes
- Analyse problems from perspective of all four dimensions of service management

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7.3.7 Problem management (BL2)

Workaround:

A solution that reduces or eliminates the impact of an incident or problem for which a full resolution is not yet available.

Some workarounds reduce the likelihood of incidents

- Workarounds are documented in problem records
- This can be done at any stage; No need to wait for analysis to be complete
- This should be reviewed and improved after problem analysis has been completed

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- An effective incident workaround can become a permanent way of dealing with some problems when resolving the problem is not viable or cost-effective.
- In this case, the problem remains in the known error status, and the documented workaround is applied should related incidents occur.
- Every documented workaround should include a clear definition of the symptoms to which it applies.
- In some cases, workaround application can be automated

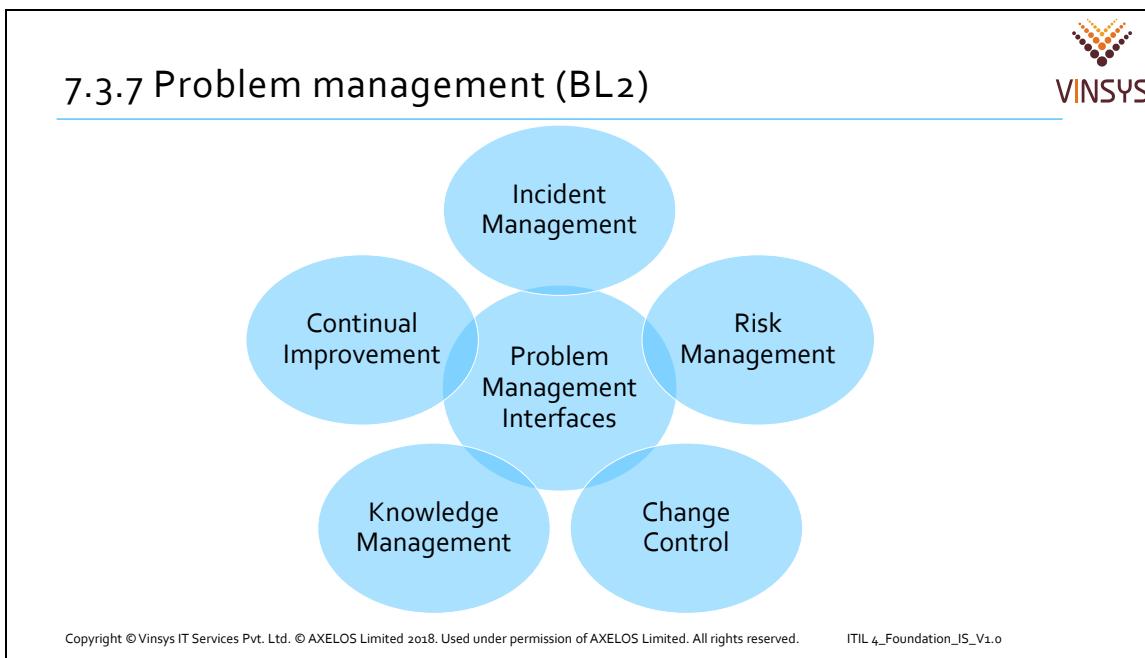


7.3.7 Problem management (BL2)

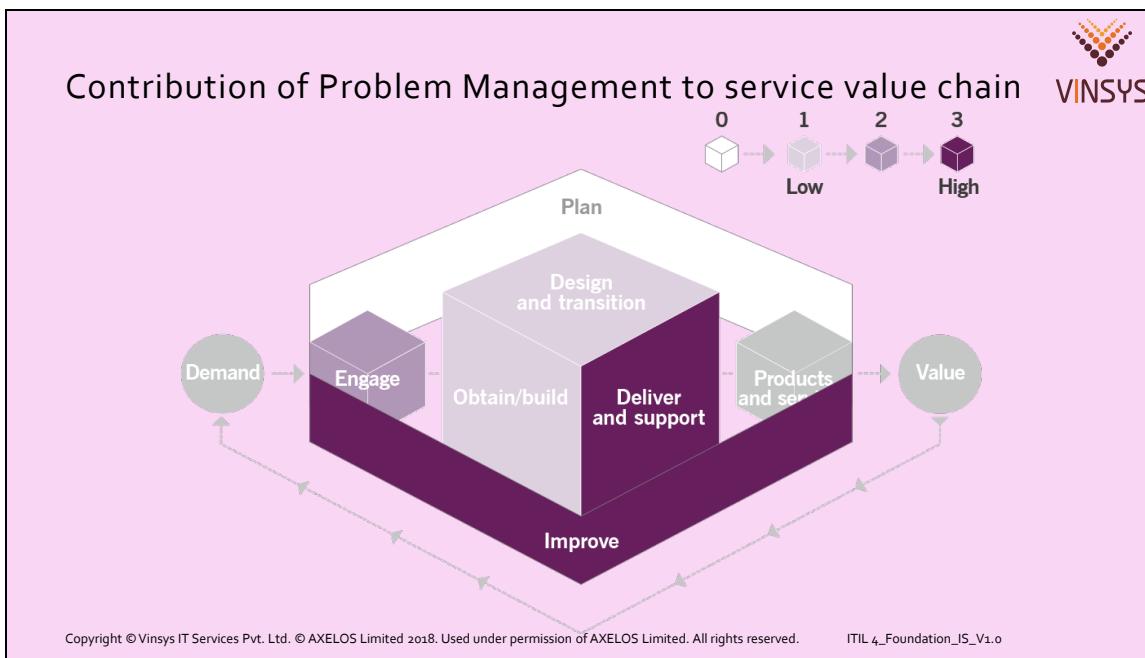
Error control activities find out a way to fix the error

- Identification of potential permanent solutions, which can be justified in terms of cost, risks, and benefits
- Re-assess status of known errors that have not been resolved
- Improve workarounds

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- Problem management activities can be organized as a specific case of risk management: they aim to identify, assess, and control risks in any of the four dimensions of service management. It is useful to adopt risk management tools and techniques for problem management.
- Implementation of problem resolution is often outside the scope of problem management. Problem management typically initiates resolution via change control and participates in the post-implementation review; however, approving and implementing changes is out of scope for the problem management practice.
- Output from the problem management practice includes information and documentation concerning workarounds and known errors. In addition, problem management may utilize information in a knowledge management system to investigate, diagnose, and resolve problems.
- Problem management activities can identify improvement opportunities in all four dimensions of service management. Solutions can in some cases be treated as improvement opportunities, so they are included in a continual improvement register (CIR), and continual improvement techniques are used to prioritize and manage them, sometimes as part of a product backlog



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 Fig 5.24, Pg 133



Contribution of Problem Management to service value chain

- Improve:

- This is the main focus area for problem management. Effective problem management provides the understanding needed to reduce the number of incidents and the impact of incidents that can't be prevented.

- Engage:

- Problems that have a significant impact on services will be visible to customers and users. In some cases, customers may wish to be involved in problem prioritization, and the status and plans for managing problems should be communicated. Workarounds are often presented to users via a service portal.

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Contribution of Problem Management to service value chain

- Design and transition:
 - Problem management provides information that helps to improve testing and knowledge transfer.
- Obtain/build:
 - Product defects may be identified by problem management; these are then managed as part of this value chain activity.
- Deliver and support:
 - Problem management makes a significant contribution by preventing incident repetition and supporting timely incident resolution.

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7.3.8 Change control (BL2)

Change:

The addition, modification, or removal of anything that could have a direct or indirect effect on services

The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule

- Three Types of Change
 - Standard Changes
 - Normal Changes
 - Emergency Changes

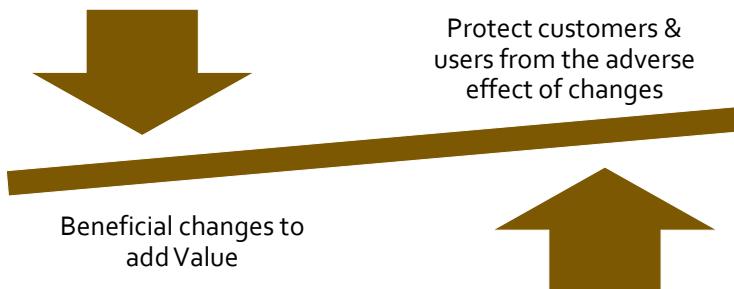
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7.3.8 Change control (BL2)



7.3.8 Change control (BL2)

- The scope of change control is defined by each organization.
- It will typically include all IT infrastructure, applications, documentation, processes, supplier relationships, and anything else that might directly or indirectly impact a product or service



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7.3.8 Change control (BL2)

Organizational change management manages the people aspects of changes to ensure that improvements and organizational transformation initiatives are implemented successfully

Change control is usually focused on changes in products and services

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7.3.8 Change control (BL2)

Standard Changes:

- These are low-risk, pre-authorized changes that are well understood and fully documented, and can be implemented without needing additional authorization
- They are often initiated as service requests, but may also be operational changes
- When the procedure for a standard change is created or modified, there should be a full risk assessment and authorization

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- Risk assessment does not need to be repeated each time the standard change is implemented; it only needs to be done if there is a modification to the way it is carried out.



7.3.8 Change control (BL2)

Normal Changes:

- These are changes that need to be scheduled, assessed, and authorized following a process
- Change models based on the type of change determine the roles for assessment and authorization.
- Can be low risk, and the change authority for these is usually someone who can make rapid decisions, often automation to speed up the change.
- Can be very major and the change authority could be as high as the management board.
- Initiation of a normal change is triggered by the creation of a change request

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- Organizations that have an automated pipeline for continuous integration and continuous deployment often automate most steps of the change control process



7.3.8 Change control (BL2)

Emergency Changes:

- These are changes that must be implemented as soon as possible
- Not typically included in a change schedule
- Process for assessment and authorization is expedited to ensure they can be implemented quickly
- Acceptable to defer some documentation until implementation
- Can have a separate change authority for emergency changes, typically including a small number of senior managers who understand the business risks involved

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- Ex. To resolve an incident or implement a security patch
- Sometimes it will be necessary to implement the change with less testing due to time constraints

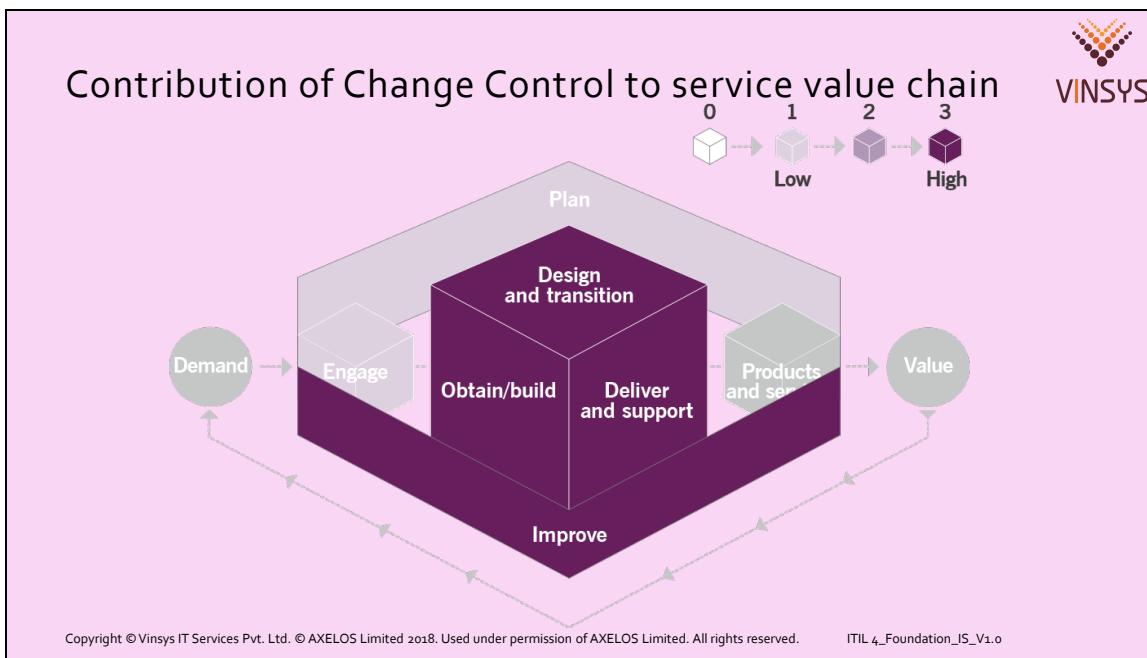


7.3.8 Change control (BL2)

- The person or group who authorizes a change is known as a change authority
- It should be correctly assigned to each type of change to ensure that change control is both efficient and effective
- In high-velocity organizations, it is common practice to decentralize change approval, making the peer review a top predictor of high performance

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- All changes should be assessed by people who are able to understand the risks and the expected benefits; the changes must then be authorized before they are deployed.
- This assessment, however, should not introduce unnecessary delay



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 Fig 5.29, Pg 120



Contribution of Change Control to service value chain

- Plan:
 - Changes to product and service portfolios, policies, and practices all require a certain level of control, and the change control practice is used to provide it.
- Improve
 - Many improvements will require changes to be made, and these should be assessed and authorized in the same way as all other changes.
- Engage:
 - Customers and users may need to be consulted or informed about changes, depending on the nature of the change.

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Contribution of Change Control to service value chain

- Design and transition:
 - Many changes are initiated as a result of new or changed services. Change control activity is a major contributor to transition.
- Obtain/build:
 - Changes to components are subject to change control, whether they are built in house or obtained from suppliers.
- Deliver and support:
 - Changes may have an impact on delivery and support, and information about changes must be communicated to personnel who carry out this value chain activity. These people may also play a part in assessing and authorizing changes.

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7.3.9 Service request management (BL2)

The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner

Service Request: A request from a user or a user's authorized representative that initiates a service action which has been agreed as a normal part of service delivery

- It is normal part of service delivery and are not a failure or degradation of service, which are handled as incidents
- Service requests may include changes to services or their components; usually these are standard changes

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7.3.9 Service request management (BL2)



7.3.9 Service request management (BL2)

Service Request Ex.

- A request for a service delivery action
- A request for information
- A request for provision of a resource or service
- A request for access to a resource or service
- Feedback, compliments, and complaints

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Service Request Ex.

- a request for a service delivery action (for example, providing a report or replacing a toner cartridge)
- a request for information (for example, how to create a document or what the hours of the office are)
- a request for provision of a resource or service (for example, providing a phone or laptop to a user, or providing a virtual server for a development team)
- a request for access to a resource or service (for example, providing access to a file or folder)
- feedback, compliments, and complaints (for example, complaints about a new interface or compliments to a support team)



7.3.9 Service request management (BL2)

- Service requests are pre-defined and pre-agreed; can usually be formalized, with a clear, standard procedure for
 - Initiation
 - Approval
 - Fulfilment
 - Management
- Some service requests have very simple workflows; some may be quite complex and require contributions from many teams
- Regardless of the complexity, the steps to fulfil the request should be well-known and proven

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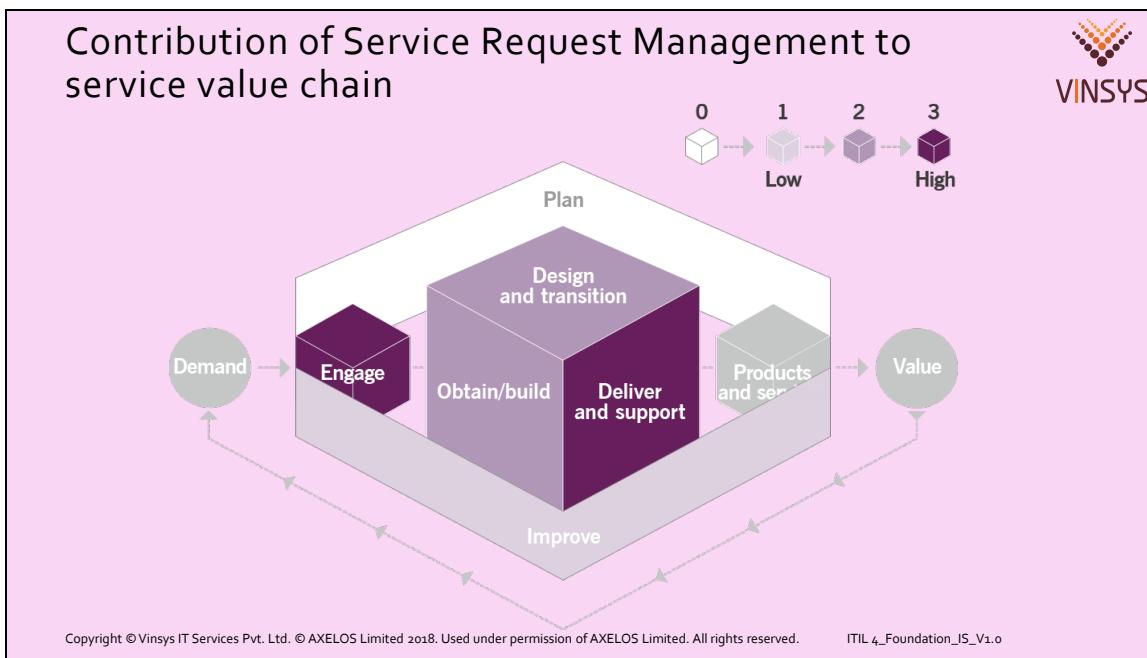


Guidelines for effective Service Request management

- It should be standardized and automated to the greatest degree possible
- Policies should be established regarding what service requests will be fulfilled with limited or no additional approvals so that fulfilment can be streamlined
- The expectations of users regarding fulfilment times should be clearly set, based on what the organization can realistically deliver
- Opportunities for improvement should be identified and implemented to produce faster fulfilment times and take advantage of automation
- Policies and workflows should be included for documenting & redirecting wrong service requests, which should actually be incidents or changes
- Some service requests require authorization according to financial, information security, or other policies, while others may not need any

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- Some service requests can be completely fulfilled by automation from submission to closure, allowing for a complete self-service experience. Examples include client software installation or provision of virtual servers.
- Service request management is dependent upon well-designed processes and procedures, which are operationalized through tracking and automation tools to maximize the efficiency of the practice.
- Different types of service request will have different fulfilment workflows, but both efficiency and maintainability will be improved if a limited number of workflow models are identified.
- When new service requests need to be added to the service catalogue, existing workflow models should be leveraged whenever possible



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Fig 5.35, Pg 157

Contribution of Service Request Management to service value chain



- Improve:
 - Service request management can provide a channel for improvement initiatives, compliments, and complaints from users. It also contributes to improvement by providing trend, quality, and feedback information about fulfilment of requests.
- Engage
 - Service request management includes regular communication to collect user-specific requirements, set expectations, and to provide status updates.

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Contribution of Service Request Management to service value chain



- Design and transition
 - Standard service components may be transitioned to the live environment through service request fulfilment.
- Obtain/build
 - Acquisition of pre-approved service components may be fulfilled through service requests.
- Deliver and support
 - Service request management makes a significant contribution to normal service delivery. This activity of the value chain is mostly concerned with ensuring users continue to be productive, and sometimes depends heavily on fulfilment of their requests.

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7.3.10 Service desk (BL2)

The purpose of the service desk practice is to capture demand for incident resolution and service requests.

It should also be the entry point and single point of contact for the service provider with all of its users

- Service desks provide a clear path for users to
 - Report issues, queries, and requests, and
 - Have them acknowledged, classified, owned, and actioned

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7.3.10 Service desk (BL2)

- How this practice is managed and delivered may vary from a physical team of people on shift work to a distributed mix of people connected virtually, or automated technology and bots.
- The function and value remain the same, regardless of the model



7.3.10 Service desk (BL2)

- With increased automation and the gradual removal of technical debt, the focus of the service desk is to provide support for 'people and business' rather than simply technical issues
- Support and development teams need to work in close collaboration with service desk to present a 'joined up' approach to users & customers
- Service desk may not need to be highly technical, although some are
- Service desk has a major influence on user experience and how the service provider is perceived by the users

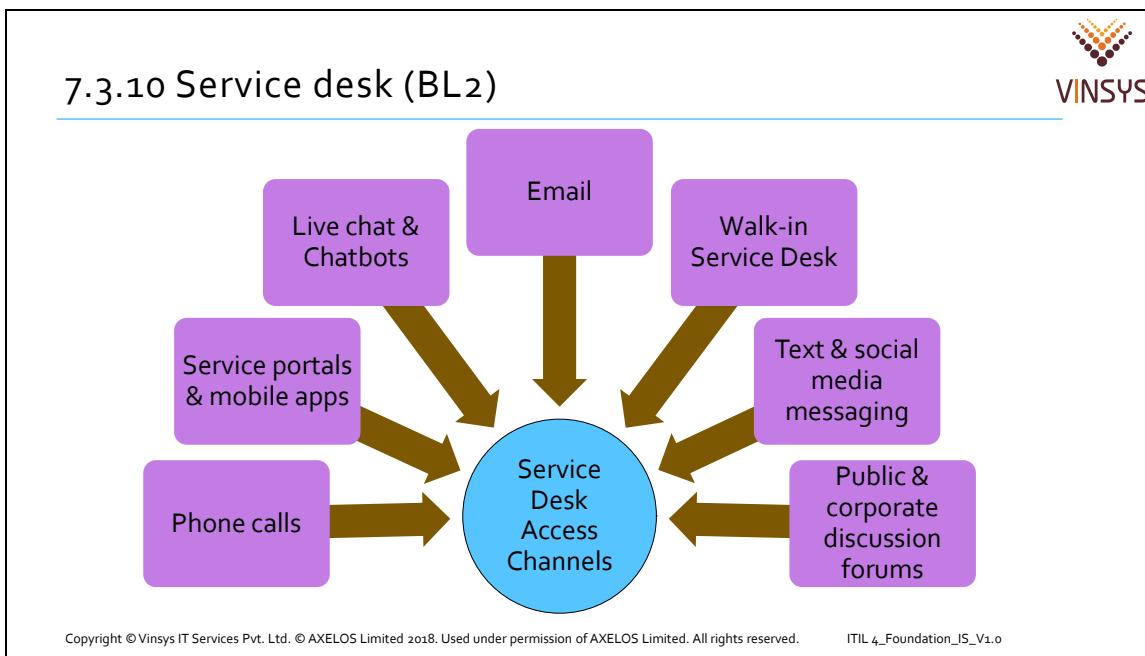
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7.3.10 Service desk (BL2)

- Service desk must have practical understanding of the wider business context, the business processes & users
- Service desks add value not simply through the transactional acts (Incident logging etc.) but also by understanding and acting on the business context of this action
- Service desk should be the empathetic and informed link between the service provider and its users
- With increased automation, service desks are moving to provide more self-service logging & resolution directly via online portals & mobile apps

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Service desks provide a variety of channels for access. These include:

- Phone calls, which can include specialized technology, such as interactive voice response (IVR), conference calls, voice recognition, and others
- Service portals and mobile applications, supported by service and request catalogues, and knowledge bases
- Chat, through live chat and chatbots
- Email for logging and updating, and for follow-up surveys and confirmations. Unstructured emails can be difficult to process, but emerging technologies based on AI and machine learning are starting to address this
- Walk-in service desks are becoming more prevalent in some sectors, e.g. higher education, where there are high peaks of activity that demand physical presence
- Text and social media messaging, which are useful for notifications in case of major incidents and for contacting specific stakeholder groups, but can also be used to allow users to request support
- Public and corporate social media and discussion forums for contacting the service provider and for peer-to-peer support.



7.3.10 Service desk (BL2)

- A centralized service desk is a tangible team, working in a single location.
- It requires supporting technologies, such as
 - Intelligent telephony systems, IVR etc.
 - Workflow systems for routing and escalation
 - Workforce management and resource planning systems
 - Knowledge bases
 - Call recording & quality control
 - Remote access tools
 - Dashboard and monitoring tools
 - CMS: Configuration management systems

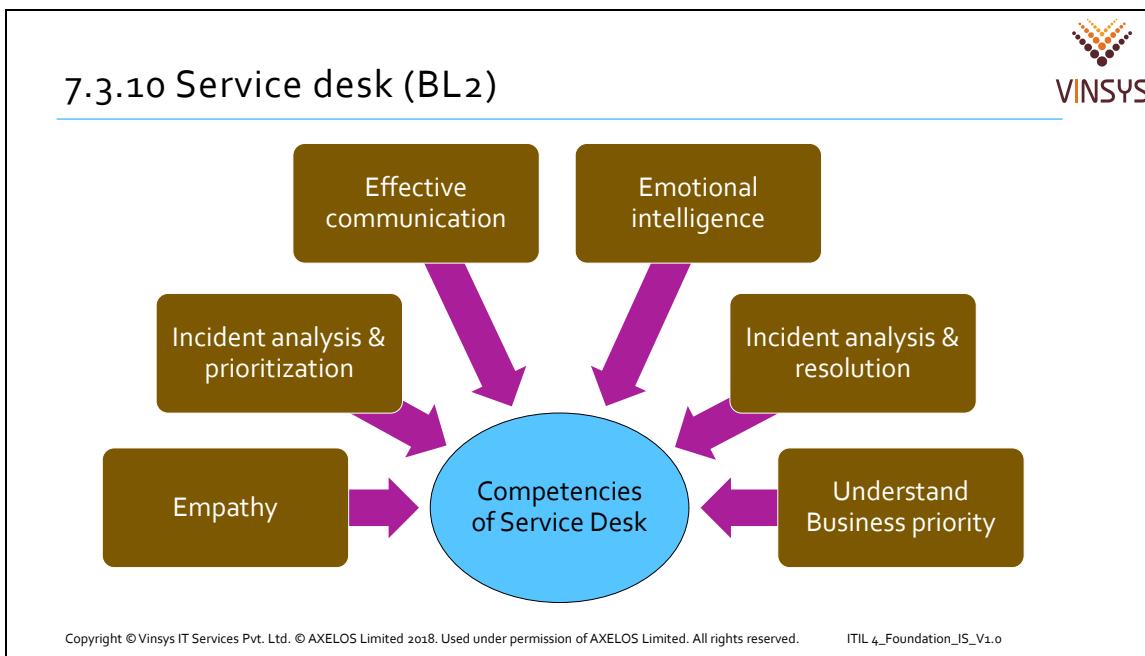
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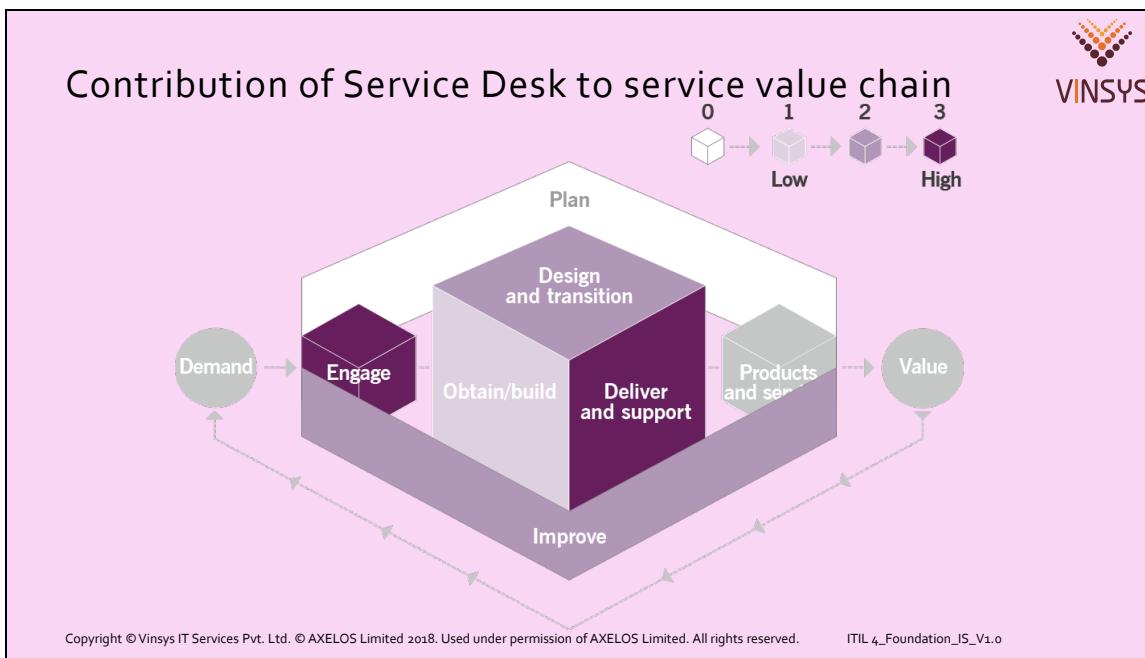


7.3.10 Service desk (BL2)

- A virtual service desk allows agents to work from multiple locations, geographically dispersed.
- A virtual service desk requires more sophisticated supporting technology, involving more complex routing and escalation, multi location access; these solutions are often cloud-based.
- Can achieve 24x7 global support

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 Fig 5.33, Pg 151



Contribution of Service Desk to service value chain

- Improve
 - Service desk activities are constantly monitored and evaluated to support continual improvement, alignment, and value creation. Feedback from users is collected by the service desk to support continual improvement.
- Engage
 - The service desk is the main channel for tactical and operational engagement with users.

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Contribution of Service Desk to service value chain

- Design and transition
 - The service desk provides a channel for communicating with users about new and changed services. Service desk staff participate in release planning, testing, and early life support.
- Obtain/build
 - Service desk staff can be involved in acquiring service components used to fulfil service requests and resolve incidents.
- Deliver and support
 - The service desk is the coordination point for managing incidents and service requests

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7.4 Technical Management Practices (1/3)

Technical management practices have been adapted from technology management domains for service management purposes by expanding or shifting their focus from technology solutions to IT services

Technical Management Practices (1/3)

Deployment management (BL1)

Infrastructure and platform management

Software development and management

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7.4 Technical Management Practices (1/3)



7.4.1 Deployment management (BL1)

The purpose of the deployment management practice is to move new or changed hardware, software, documentation, processes, or any other component to live environments.

- It may also be involved in deploying components to other environments for testing or staging.

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7.4.1 Deployment management (BL1)



Glossary terms and definitions

Term	Definition
acceptance criteria	A list of minimum requirements that a service or service component must meet for it to be acceptable to key stakeholders.
Agile	An umbrella term for a collection of frameworks and techniques that together enable teams and individuals to work in a way that is typified by collaboration, prioritization, iterative and incremental delivery, and timeboxing. There are several specific methods (or frameworks) that are classed as Agile, such as Scrum, Lean, and Kanban.
architecture management practice	The practice of providing an understanding of all the different elements that make up an organization and how those elements relate to one another.
asset register	A database or list of assets, capturing key attributes such as ownership and financial value.
availability	The ability of an IT service or other configuration item to perform its agreed function when required.
availability management practice	The practice of ensuring that services deliver agreed levels of availability to meet the needs of customers and users.
baseline	A report or metric that serves as a starting point against which progress or change can be assessed.
best practice	A way of working that has been proven to be successful by multiple organizations.
big data	The use of very large volumes of structured and unstructured data from a variety of sources to gain new insights.
business analysis practice	The practice of analysing a business or some element of a business, defining its needs and recommending solutions to address these needs and/or solve a business problem, and create value for stakeholders.
business case	A justification for expenditure of organizational resources, providing information about costs, benefits, options, risks, and issues.
business impact analysis (BIA)	A key activity in the practice of service continuity management that identifies vital business functions and their dependencies.
business relationship manager (BRM)	A role responsible for maintaining good relationships with one or more customers.
call	An interaction (e.g. a telephone call) with the service desk. A call could result in an incident or a service request being logged.
call/contact centre	An organization or business unit that handles large numbers of incoming and outgoing calls and other interactions.
capability	The ability of an organization, person, process, application, configuration item, or IT service to carry out an activity.

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Term	Definition
capacity and performance management practice	The practice of ensuring that services achieve agreed and expected performance levels, satisfying current and future demand in a cost-effective way.
capacity planning	The activity of creating a plan that manages resources to meet demand for services.
change	The addition, modification, or removal of anything that could have a direct or indirect effect on services.
change authority	A person or group responsible for authorizing a change.
change control practice	The practice of ensuring that risks are properly assessed, authorizing changes to proceed and managing a change schedule in order to maximize the number of successful service and product changes.
change model	A repeatable approach to the management of a particular type of change.
change schedule	A calendar that shows planned and historical changes.
charging	The activity that assigns a price for services.
cloud computing	A model for enabling on-demand network access to a shared pool of configurable computing resources that can be rapidly provided with minimal management effort or provider interaction.
compliance	The act of ensuring that a standard or set of guidelines is followed, or that proper, consistent accounting or other practices are being employed.
confidentiality	A security objective that ensures information is not made available or disclosed to unauthorized entities.
configuration	An arrangement of configuration items (CIs) or other resources that work together to deliver a product or service. Can also be used to describe the parameter settings for one or more CIs.
configuration item (CI)	Any component that needs to be managed in order to deliver an IT service.
configuration management database (CMDB)	A database used to store configuration records throughout their lifecycle. The CMDB also maintains the relationships between configuration records.
configuration management system (CMS)	A set of tools, data, and information that is used to support service configuration management.
configuration record	A record containing the details of a configuration item (CI). Each configuration record documents the lifecycle of a single CI. Configuration records are stored in a configuration management database.
continual improvement practice	The practice of aligning an organization's practices and services with changing business needs through the ongoing identification and improvement of all elements involved in the effective management of products and services.

Term	Definition
continuous deployment	An integrated set of practices and tools used to deploy software changes into the production environment. These software changes have already passed pre-defined automated tests.
continuous integration / continuous delivery	An integrated set of practices and tools used to merge developers' code, build and test the resulting software, and package it so that it is ready for deployment.
control	The means of managing a risk, ensuring that a business objective is achieved, or that a process is followed.
cost	The amount of money spent on a specific activity or resource.
cost centre	A business unit or project to which costs are assigned.
critical success factor (CSF)	A necessary precondition for the achievement of intended results.
culture	A set of values that is shared by a group of people, including expectations about how people should behave, ideas, beliefs, and practices.
customer	A person who defines the requirements for a service and takes responsibility for the outcomes of service consumption.
customer experience (CX)	The sum of functional and emotional interactions with a service and service provider as perceived by a service consumer.
dashboard	A real-time graphical representation of data.
deliver and support	The value chain activity that ensures services are delivered and supported according to agreed specifications and stakeholders' expectations.
demand	Input to the service value system based on opportunities and needs from internal and external stakeholders.
deployment	The movement of any service component into any environment.
deployment management practice	The practice of moving new or changed hardware, software, documentation, processes, or any other service component to live environments.
design and transition	The value chain activity that ensures products and services continually meet stakeholder expectations for quality, costs, and time to market.
design thinking	A practical and human-centred approach used by product and service designers to solve complex problems and find practical and creative solutions that meet the needs of an organization and its customers.
development environment	An environment used to create or modify IT services or applications.
DevOps	An organizational culture that aims to improve the flow of value to customers. DevOps focuses on culture, automation, Lean, measurement, and sharing (CALMS).
digital transformation	The evolution of traditional business models to meet the needs of highly empowered customers, with technology playing an enabling role.

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Term	Definition
disaster	A sudden unplanned event that causes great damage or serious loss to an organization. A disaster results in an organization failing to provide critical business functions for some predetermined minimum period of time.
disaster recovery plans	A set of clearly defined plans related to how an organization will recover from a disaster as well as return to a pre-disaster condition, considering the four dimensions of service management.
driver	Something that influences strategy, objectives, or requirements.
effectiveness	A measure of whether the objectives of a practice, service or activity have been achieved.
efficiency	A measure of whether the right amount of resources have been used by a practice, service, or activity.
emergency change	A change that must be introduced as soon as possible.
engage	The value chain activity that provides a good understanding of stakeholder needs, transparency, continual engagement, and good relationships with all stakeholders.
environment	A subset of the IT infrastructure that is used for a particular purpose, for example a live environment or test environment. Can also mean the external conditions that influence or affect something.
error	A flaw or vulnerability that may cause incidents.
error control	Problem management activities used to manage known errors.
escalation	The act of sharing awareness or transferring ownership of an issue or work item.
event	Any change of state that has significance for the management of a service or other configuration item.
external customer	A customer who works for an organization other than the service provider.
failure	A loss of ability to operate to specification, or to deliver the required output or outcome.
feedback loop	A technique whereby the outputs of one part of a system are used as inputs to the same part of the system.
four dimensions of service management	The four perspectives that are critical to the effective and efficient facilitation of value for customers and other stakeholders in the form of products and services.
goods	Tangible resources that are transferred or available for transfer from a service provider to a service consumer, together with ownership and associated rights and responsibilities.
governance	The means by which an organization is directed and controlled.
identity	A unique name that is used to identify and grant system access rights to a user, person, or role.

Term	Definition
improve	The value chain activity that ensures continual improvement of products, services, and practices across all value chain activities and the four dimensions of service management.
incident	An unplanned interruption to a service or reduction in the quality of a service.
incident management	The practice of minimizing the negative impact of incidents by restoring normal service operation as quickly as possible.
information and technology	One of the four dimensions of service management. It includes the information and knowledge used to deliver services, and the information and technologies used to manage all aspects of the service value system.
information security management practice	The practice of protecting an organization by understanding and managing risks to the confidentiality, integrity, and availability of information.
information security policy	The policy that governs an organization's approach to information security management.
infrastructure and platform management practice	The practice of overseeing the infrastructure and platforms used by an organization. This enables the monitoring of technology solutions available, including solutions from third parties.
integrity	A security objective that ensures information is only modified by authorized personnel and activities.
internal customer	A customer who works for the same organization as the service provider.
Internet of Things	The interconnection of devices via the internet that were not traditionally thought of as IT assets, but now include embedded computing capability and network connectivity.
IT asset	Any financially valuable component that can contribute to the delivery of an IT product or service.
IT asset management practice	The practice of planning and managing the full lifecycle of all IT assets.
IT infrastructure	All of the hardware, software, networks, and facilities that are required to develop, test, deliver, monitor, manage, and support IT services.
IT service	A service based on the use of information technology.
ITIL	Best-practice guidance for IT service management.
ITIL guiding principles	Recommendations that can guide an organization in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure.
ITIL service value chain	An operating model for service providers that covers all the key activities required to effectively manage products and services.
Kanban	A method for visualizing work, identifying potential blockages and resource conflicts, and managing work in progress.

Term	Definition
key performance indicator (KPI)	An important metric used to evaluate the success in meeting an objective.
knowledge management practice	The practice of maintaining and improving the effective, efficient, and convenient use of information and knowledge across an organization.
known error	A problem that has been analysed but has not been resolved.
Lean	An approach that focuses on improving workflows by maximizing value through the elimination of waste.
lifecycle	The full set of stages, transitions, and associated statuses in the life of a service, product, practice, or other entity.
live	Refers to a service or other configuration item operating in the live environment.
live environment	A controlled environment used in the delivery of IT services to service consumers.
maintainability	The ease with which a service or other entity can be repaired or modified.
major incident	An incident with significant business impact, requiring an immediate coordinated resolution.
management system	Interrelated or interacting elements that establish policy and objectives and enable the achievement of those objectives.
maturity	A measure of the reliability, efficiency and effectiveness of an organization, practice, or process.
mean time between failures (MTBF)	A metric of how frequently a service or other configuration item fails.
mean time to restore service (MTRS)	A metric of how quickly a service is restored after a failure.
measurement and reporting	The practice of supporting good decision-making and continual improvement by decreasing levels of uncertainty.
metric	A measurement or calculation that is monitored or reported for management and improvement.
minimum viable product (MVP)	A product with just enough features to satisfy early customers, and to provide feedback for future product development.
mission statement	A short but complete description of the overall purpose and intentions of an organization. It states what is to be achieved, but not how this should be done.
model	A representation of a system, practice, process, service, or other entity that is used to understand and predict its behaviour and relationships.
modelling	The activity of creating, maintaining, and utilizing models.
monitoring	Repeated observation of a system, practice, process, service, or other entity to detect events and to ensure that the current status is known.

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Term	Definition
monitoring and event management practice	The practice of systematically observing services and service components, and recording and reporting selected changes of state identified as events.
obtain/build	The value chain activity that ensures service components are available when and where they are needed, and that they meet agreed specifications.
operation	The routine running and management of an activity, product, service, or other configuration item.
operational technology	The hardware and software solutions that detect or cause changes in physical processes through direct monitoring and/or control of physical devices such as valves, pumps, etc.
organization	A person or a group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives.
organizational change management practice	The practice of ensuring that changes in an organization are smoothly and successfully implemented and that lasting benefits are achieved by managing the human aspects of the changes.
organizational resilience	The ability of an organization to anticipate, prepare for, respond to, and adapt to unplanned external influences.
organizational velocity	The speed, effectiveness, and efficiency with which an organization operates. Organizational velocity influences time to market, quality, safety, costs, and risks.
organizations and people	One of the four dimensions of service management. It ensures that the way an organization is structured and managed, as well as its roles, responsibilities, and systems of authority and communication, is well defined and supports its overall strategy and operating model.
outcome	A result for a stakeholder enabled by one or more outputs.
output	A tangible or intangible deliverable of an activity.
outsourcing	The process of having external suppliers provide products and services that were previously provided internally.
partners and suppliers	One of the four dimensions of service management. It encompasses the relationships an organization has with other organizations that are involved in the design, development, deployment, delivery, support, and/or continual improvement of services.
partnership	A relationship between two organizations that involves working closely together to achieve common goals and objectives.
performance	A measure of what is achieved or delivered by a system, person, team, practice, or service.
pilot	A test implementation of a service with a limited scope in a live environment.
plan	The value chain activity that ensures a shared understanding of the vision, current status, and improvement direction for all four dimensions and all products and services across an organization.

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Term	Definition
policy	Formally documented management expectations and intentions, used to direct decisions and activities.
portfolio management practice	The practice of ensuring that an organization has the right mix of programmes, projects, products, and services to execute its strategy within its funding and resource constraints.
post-implementation review (PIR)	A review after the implementation of a change, to evaluate success and identify opportunities for improvement.
practice	A set of organizational resources designed for performing work or accomplishing an objective.
problem	A cause, or potential cause, of one or more incidents.
problem management practice	The practice of reducing the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors.
procedure	A documented way to carry out an activity or a process.
process	A set of interrelated or interacting activities that transform inputs into outputs. A process takes one or more defined inputs and turns them into defined outputs. Processes define the sequence of actions and their dependencies.
product	A configuration of an organization's resources designed to offer value for a consumer.
production environment	<i>See</i> live environment.
programme	A set of related projects and activities, and an organization structure created to direct and oversee them.
project	A temporary structure that is created for the purpose of delivering one or more outputs (or products) according to an agreed business case.
project management practice	The practice of ensuring that all an organization's projects are successfully delivered.
quick win	An improvement that is expected to provide a return on investment in a short period of time with relatively small cost and effort.
record	A document stating results achieved and providing evidence of activities performed.
recovery	The activity of returning a configuration item to normal operation after a failure.
recovery point objective (RPO)	The point to which information used by an activity must be restored to enable the activity to operate on resumption.
recovery time objective (RTO)	The maximum acceptable period of time following a service disruption that can elapse before the lack of business functionality severely impacts the organization.
relationship management practice	The practice of establishing and nurturing links between an organization and its stakeholders at strategic and tactical levels.

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Term	Definition
release	A version of a service or other configuration item, or a collection of configuration items, that is made available for use.
release management practice	The practice of making new and changed services and features available for use.
reliability	The ability of a product, service, or other configuration item to perform its intended function for a specified period of time or number of cycles.
request catalogue	A view of the service catalogue, providing details on service requests for existing and new services, which is made available for the user.
request for change (RFC)	A description of a proposed change used to initiate change control.
resolution	The action of solving an incident or problem.
resource	A person, or other entity, that is required for the execution of an activity or the achievement of an objective. Resources used by an organization may be owned by the organization or used according to an agreement with the resource owner.
retire	The act of permanently withdrawing a product, service, or other configuration item from use.
risk	A possible event that could cause harm or loss, or make it more difficult to achieve objectives. Can also be defined as uncertainty of outcome, and can be used in the context of measuring the probability of positive outcomes as well as negative outcomes.
risk assessment	An activity to identify, analyse, and evaluate risks.
risk management practice	The practice of ensuring that an organization understands and effectively handles risks.
service	A means of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks.
service action	Any action required to deliver a service output to a user. Service actions may be performed by a service provider resource, by service users, or jointly.
service architecture	A view of all the services provided by an organization. It includes interactions between the services, and service models that describe the structure and dynamics of each service.
service catalogue	Structured information about all the services and service offerings of a service provider, relevant for a specific target audience.
service catalogue management practice	The practice of providing a single source of consistent information on all services and service offerings, and ensuring that it is available to the relevant audience.
service configuration management practice	The practice of ensuring that accurate and reliable information about the configuration of services, and the configuration items that support them, is available when and where needed.

Term	Definition
service consumption	Activities performed by an organization to consume services. It includes the management of the consumer's resources needed to use the service, service actions performed by users, and the receiving (acquiring) of goods (if required).
service continuity management practice	The practice of ensuring that service availability and performance are maintained at a sufficient level in case of a disaster.
service design practice	The practice of designing products and services that are fit for purpose, fit for use, and that can be delivered by the organization and its ecosystem.
service desk	The point of communication between the service provider and all its users.
service desk practice	The practice of capturing demand for incident resolution and service requests.
service financial management practice	The practice of supporting an organization's strategies and plans for service management by ensuring that the organization's financial resources and investments are being used effectively.
service level	One or more metrics that define expected or achieved service quality.
service level agreement (SLA)	A documented agreement between a service provider and a customer that identifies both services required and the expected level of service.
service level management practice	The practice of setting clear business-based targets for service performance so that the delivery of a service can be properly assessed, monitored, and managed against these targets.
service management	A set of specialized organizational capabilities for enabling value for customers in the form of services.
service offering	A formal description of one or more services, designed to address the needs of a target consumer group. A service offering may include goods, access to resources, and service actions.
service owner	A role that is accountable for the delivery of a specific service.
service portfolio	A complete set of products and services that are managed throughout their lifecycles by an organization.
service provider	A role performed by an organization in a service relationship to provide services to consumers.
service provision	Activities performed by an organization to provide services. It includes management of the provider's resources, configured to deliver the service; ensuring access to these resources for users; fulfilment of the agreed service actions; service level management; and continual improvement. It may also include the supply of goods.
service relationship	A cooperation between a service provider and service consumer. Service relationships include service provision, service consumption, and service relationship management.

Term	Definition
service relationship management	Joint activities performed by a service provider and a service consumer to ensure continual value co-creation based on agreed and available service offerings.
service request	A request from a user or a user's authorized representative that initiates a service action which has been agreed as a normal part of service delivery.
service request management practice	The practice of supporting the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner.
service validation and testing practice	The practice of ensuring that new or changed products and services meet defined requirements.
service value system (SVS)	A model representing how all the components and activities of an organization work together to facilitate value creation.
software development and management practice	The practice of ensuring that applications meet stakeholder needs in terms of functionality, reliability, maintainability, compliance, and auditability.
sourcing	The activity of planning and obtaining resources from a particular source type, which could be internal or external, centralized or distributed, and open or proprietary.
specification	A documented description of the properties of a product, service, or other configuration item.
sponsor	A person who authorizes budget for service consumption. Can also be used to describe an organization or individual that provides financial or other support for an initiative.
stakeholder	A person or organization that has an interest or involvement in an organization, product, service, practice, or other entity.
standard	A document, established by consensus and approved by a recognized body, that provides for common and repeated use, mandatory requirements, guidelines, or characteristics for its subject.
standard change	A low-risk, pre-authorized change that is well understood and fully documented, and which can be implemented without needing additional authorization.
status	A description of the specific states an entity can have at a given time.
strategy management practice	The practice of formulating the goals of an organization and adopting the courses of action and allocation of resources necessary for achieving those goals.
supplier	A stakeholder responsible for providing services that are used by an organization.
supplier management practice	The practice of ensuring that an organization's suppliers and their performance levels are managed appropriately to support the provision of seamless quality products and services.

Term	Definition
support team	A team with the responsibility to maintain normal operations, address users' requests, and resolve incidents and problems related to specified products, services, or other configuration items.
system	A combination of interacting elements organized and maintained to achieve one or more stated purposes.
systems thinking	A holistic approach to analysis that focuses on the way that a system's constituent parts work, interrelate, and interact over time, and within the context of other systems.
technical debt	The total rework backlog accumulated by choosing workarounds instead of system solutions that would take longer.
test environment	A controlled environment established to test products, services, and other configuration items.
third party	A stakeholder external to an organization.
throughput	A measure of the amount of work performed by a product, service, or other system over a given period of time.
transaction	A unit of work consisting of an exchange between two or more participants or systems.
use case	A technique using realistic practical scenarios to define functional requirements and to design tests.
user	A person who uses services.
utility	The functionality offered by a product or service to meet a particular need. Utility can be summarized as 'what the service does' and can be used to determine whether a service is 'fit for purpose'. To have utility, a service must either support the performance of the consumer or remove constraints from the consumer. Many services do both.
utility requirements	Functional requirements which have been defined by the customer and are unique to a specific product.
validation	Confirmation that the system, product, service, or other entity meets the agreed specification.
value	The perceived benefits, usefulness, and importance of something.
value stream	A series of steps an organization undertakes to create and deliver products and services to consumers.
value streams and processes	One of the four dimensions of service management. It defines the activities, workflows, controls, and procedures needed to achieve the agreed objectives.
vision	A defined aspiration of what an organization would like to become in the future.

Term	Definition
warranty	Assurance that a product or service will meet agreed requirements. Warranty can be summarized as ‘how the service performs’ and can be used to determine whether a service is ‘fit for use’. Warranty often relates to service levels aligned with the needs of service consumers. This may be based on a formal agreement, or it may be a marketing message or brand image. Warranty typically addresses such areas as the availability of the service, its capacity, levels of security, and continuity. A service may be said to provide acceptable assurance, or ‘warranty’, if all defined and agreed conditions are met.
warranty requirements	Typically non-functional requirements captured as inputs from key stakeholders and other practices.
waterfall method	A development approach that is linear and sequential with distinct objectives for each phase of development.
work instruction	A detailed description to be followed in order to perform an activity.
workaround	A solution that reduces or eliminates the impact of an incident or problem for which a full resolution is not yet available. Some workarounds reduce the likelihood of incidents.
workforce and talent management practice	The practice of ensuring that an organization has the right people with the appropriate skills and knowledge and in the correct roles to support its business objectives.

ITIL 4 Foundation Sample Paper & Syllabus from Axelos



The ITIL® 4 Foundation Examination

Sample Paper 1

Question Booklet

Multiple Choice

Examination Duration: 1 Hour

Instructions

1. You should attempt all 40 questions. Each question is worth one mark.
2. There is only one correct answer per question.
3. You need to answer 26 questions correctly to pass the exam.
4. Mark your answers on the answer sheet provided. Use a pencil (NOT pen).
5. You have 60 minutes to complete this exam.
6. This is a 'closed book' exam. No material other than the exam paper is allowed.

- 1) Which practice is responsible for moving components to live environments?
 - A. Change control
 - B. Release management
 - C. IT asset management
 - D. Deployment management

- 2) Which practice includes the classification and ownership of queries and requests from users?
 - A. Service desk
 - B. Incident management
 - C. Change control
 - D. Service level management

- 3) Which practice identifies metrics that reflect the customer's experience of a service?
 - A. Continual improvement
 - B. Service desk
 - C. Service level management
 - D. Problem management

- 4) What is the PRIMARY use of a change schedule?
 - A. To support 'incident management' and improvement planning
 - B. To manage emergency changes
 - C. To plan changes and help avoid conflicts
 - D. To manage standard changes

5) Which service management dimension is focused on activities and how these are coordinated?

- A. Organizations and people
- B. Information and technology
- C. Partners and suppliers
- D. Value streams and processes

6) How does categorization of incidents assist the ‘incident management’ practice?

- A. It helps direct the incident to the correct support area
- B. It determines the priority assigned to the incident
- C. It ensures that incidents are resolved in timescales agreed with the customer
- D. It determines how the service provider is perceived

7) Identify the missing word(s) in the following sentence.

A service is a means of enabling value co-creation by facilitating [?] that customers want to achieve.

- A. the warranty
- B. outcomes
- C. the utility
- D. outputs

8) Which is a recommendation of the ‘continual improvement’ practice?

- A. There should at least be a small team dedicated to leading ‘continual improvement’ efforts
- B. All improvements should be managed as multi-phase projects
- C. ‘Continual improvement’ should be isolated from other practices
- D. External suppliers should be excluded from improvement initiatives

- 9) Which is a potential benefit of using an IT service management tool to support the 'incident management' practice?
- A. It may ensure that the cause of incidents is identified within agreed times
 - B. It may provide automated matching of incidents to problems or known errors
 - C. It may ensure that supplier contracts are aligned with the needs of the service provider
 - D. It may provide automated resolution and closure of complex incidents
- 10) Which role submits service requests?
- A. The user, or their authorized representative
 - B. The customer, or their authorized representative
 - C. The sponsor, or their authorized representative
 - D. The supplier, or their authorized representative
- 11) Which practice provides a single point of contact for users?
- A. Incident management
 - B. Change control
 - C. Service desk
 - D. Service request management
- 12) Which guiding principle recommends that the four dimensions of service management are considered?
- A. Think and work holistically
 - B. Progress iteratively with feedback
 - C. Focus on value
 - D. Keep it simple and practical

- 13) Which would be supported by the 'service request management' practice?
- A. A request to authorize a change that could have an effect on a service
 - B. A request from a user for something which is a normal part of service delivery
 - C. A request to restore service after a service interruption
 - D. A request to investigate the cause of multiple related incidents
- 14) Which practice is the responsibility of everyone in the organization?
- A. Service level management
 - B. Change control
 - C. Problem management
 - D. Continual improvement
- 15) Identify the missing word in the following sentence.
- The purpose of the 'information security management' practice is to [?] the organization's information.
- A. store
 - B. provide
 - C. audit
 - D. protect
- 16) Which guiding principle recommends collecting data before deciding what can be re-used?
- A. Focus on value
 - B. Start where you are
 - C. Keep it simple and practical
 - D. Progress iteratively with feedback

17) Which is NOT usually included as part of incident management?

- A. Scripts for collecting initial information about incidents
- B. Formalized procedures for logging incidents
- C. Detailed procedures for the diagnosis of incidents
- D. The use of specialized knowledge for complicated incidents

18) Which describes the nature of the guiding principles?

- A. Guiding principles can guide an organization in all circumstances
- B. Each guiding principle mandates specific actions and decisions
- C. An organization will select and adopt only one of the seven guiding principles
- D. Guiding principles describe the processes that all organizations must adopt

19) Which statement about a change authority is CORRECT?

- A. A single change authority should be assigned to authorize all types of change and change models
- B. A change authority should be assigned for each type of change and change model
- C. Normal changes are pre-authorized and do not need a change authority
- D. Emergency changes can be implemented without authorization from a change authority

20) Which practice has the purpose of making new and changed services and features available for use?

- A. Change control
- B. Service request management
- C. Release management
- D. Deployment management

21) Which value chain activity ensures people understand the organization's vision?

- A. Improve
- B. Plan
- C. Deliver and support
- D. Obtain/build

22) Which statement about the value chain activities is CORRECT?

- A. Every practice belongs to a specific value chain activity
- B. A specific combination of value chain activities and practices forms a service relationship
- C. Service value chain activities form a single workflow that enables value creation
- D. Each value chain activity contributes to the value chain by transforming specific inputs into outputs

23) What is the purpose of the 'supplier management' practice?

- A. To ensure that the organization's suppliers and their performance are managed appropriately to support the seamless provision of quality products and services
- B. To align the organization's practices and services with changing business needs through the ongoing identification and improvement of services
- C. To ensure that the organization's suppliers and their performance are managed appropriately at strategic and tactical levels through coordinated marketing, selling, and delivery activities
- D. To ensure that accurate and reliable information about the configuration of suppliers' services is available when and where it is needed

24) What are the two types of cost that a service consumer should evaluate?

- A. The price of the service, and the cost of creating the service
- B. The costs removed by the service, and the costs imposed by the service
- C. The cost of provisioning the service, and the cost of improving the service
- D. The cost of software, and the cost of hardware

25) Which is a purpose of the ‘service desk’ practice?

- A. To reduce the likelihood and impact of incidents by identifying actual and potential causes of incidents
- B. To maximize the number of successful IT changes by ensuring risks are properly assessed
- C. To capture demand for incident resolution and service requests
- D. To set clear business-based targets for service performance

26) How should an organization adopt continual improvement methods?

- A. Use a new method for each improvement the organization handles
- B. Select a few key methods for the types of improvement that the organization handles
- C. Build the capability to use as many improvement methods as possible
- D. Select a single method for all improvements that the organization handles

27) Which ITIL concept describes governance?

- A. The seven guiding principles
- B. The four dimensions of service management
- C. The service value chain
- D. The service value system

28) Which is a recommendation of the ‘service desk’ practice?

- A. Service desks should avoid the use of automation
- B. Service desks should be highly technical
- C. Service desks should understand the wider organization
- D. Service desks should be a physical team in a single fixed location

29) Which guiding principle recommends organizing work into smaller, manageable sections that can be executed and completed in a timely manner?

- A. Focus on value
- B. Start where you are
- C. Progress iteratively with feedback
- D. Collaborate and promote visibility

30) What is a standard change?

- A. A change that is well understood, fully documented and pre-authorized
- B. A change that needs to be assessed, authorized, and scheduled by a change authority
- C. A change that doesn't need a risk assessment because it is required to resolve an incident
- D. A change that is assessed, authorized, and scheduled as part of 'continual improvement'

31) What happens if a workaround becomes the permanent way of dealing with a problem that cannot be resolved cost-effectively?

- A. A change request is submitted to change control
- B. Problem management restores the service as soon as possible
- C. The problem remains in the known error status
- D. The problem record is deleted

32) What is the definition of change?

- A. To add, modify or remove anything that could have a direct or indirect effect on services
- B. To ensure that accurate and reliable information about the configuration of services is available
- C. To make new and changed services and features available for use
- D. To move new or changed hardware, software, or any other component to live environments

33) What is the definition of an event?

- A. Any change of state that has significance for the management of a service or other configuration item
- B. Any component that needs to be managed in order to deliver an IT service
- C. An unplanned interruption to a service or reduction in the quality of a service
- D. Any financially valuable component that can contribute to the delivery of an IT product or service

34) Which describes outcomes?

- A. Tangible or intangible deliverables
- B. Functionality offered by a product or service
- C. Results desired by a stakeholder
- D. Configuration of an organization's resources

35) Which is NOT a key focus of the 'information and technology' dimension?

- A. Security and compliance
- B. Communication systems and knowledge bases
- C. Workflow management and inventory systems
- D. Roles and responsibilities

36) Which practices are typically involved in the implementation of a problem resolution?

- 1. Continual improvement
 - 2. Service request management
 - 3. Service level management
 - 4. Change control
-
- A. 1 and 2
 - B. 2 and 3
 - C. 3 and 4
 - D. 1 and 4

37) Which is a key consideration for the guiding principle ‘keep it simple and practical’?

- A. Try to create a solution for every exception
- B. Understand how each element contributes to value creation
- C. Ignore the conflicting objectives of different stakeholders
- D. Start with a complex solution, then simplify

38) What should be done first when applying the ‘focus on value’ guiding principle?

- A. Identify the outcomes that the service facilitates
- B. Identify all suppliers and partners involved in the service
- C. Determine who the service consumer is in each situation
- D. Determine the cost of providing the service

39) A service provider describes a package that includes a laptop with software, licences, and support. What is this package an example of?

- A. Value
- B. An outcome
- C. Warranty
- D. A service offering

40) What is the definition of warranty?

- A. A tangible or intangible deliverable that is produced by carrying out an activity
- B. The assurance that a product or service will meet agreed requirements
- C. A possible event that could cause harm or loss, or make it more difficult to achieve objectives
- D. The functionality offered by a product or service to meet a particular need



The ITIL® 4 Foundation Examination

Sample Paper 1

Answers and Rationales

The ITIL® 4 Foundation Examination

For exam paper: EN_ITIL4_FND_2019_SamplePaper1_QuestionBk_v1.3

Q	A	Syllabus Ref	Rationale
1	D	6.1.h	<p>A. Incorrect. “The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule”. Ref 5.2.4</p> <p>B. Incorrect. “The purpose of the release management practice is to make new and changed services and features available for use.” Ref 5.2.8</p> <p>C. Incorrect. “The purpose of the IT asset management practice is to plan and manage the full lifecycle of all IT assets”. Ref 5.2.6</p> <p>D. Correct. “The purpose of the deployment management practice is to move new or changed hardware, software, documentation, processes, or any other component to live environments.” Ref 5.3.1</p>
2	A	7.1.f	<p>A. Correct. “Service desks provide a clear path for users to report issues, queries, and requests, and have them acknowledged, classified, owned, and actioned”. Ref 5.2.14</p> <p>B. Incorrect. The ‘incident management’ practice deals only with incidents, not queries and requests. “The purpose of the incident management practice is to minimize the negative impact of incidents by restoring normal service operation as quickly as possible”. Ref 5.2.5</p> <p>C. Incorrect. The ‘change control’ practice deals only with change requests, not other queries and requests. “The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule”. Ref 5.2.4</p> <p>D. Incorrect. The ‘service level management’ practice ensures service targets are met. It does not manage queries and requests from users. “The purpose of the service level management practice is to set clear business-based targets for service performance, so that the delivery of a service can be properly assessed, monitored, and managed against these targets”. Ref 5.2.13</p>

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Q	A	Syllabus Ref	Rationale
3	C	7.1.g	<p>A. Incorrect. "The purpose of the continual improvement practice is to align the organization's practices and services with changing business needs through the ongoing improvement of products, services, and practices, or any element involved in the management of products and services." Ref 5.1.2</p> <p>B. Incorrect. "The purpose of the service desk practice is to capture demand for incident resolution and service requests. It should also be the entry point and single point of contact for the service provider with all of its users." Ref 5.2.14</p> <p>C. Correct. "Service level management identifies metrics and measures that are a truthful reflection of the customer's actual experience and level of satisfaction with the whole service," and "Engagement is needed to understand and confirm the actual ongoing needs and requirements of customers, not simply what is interpreted by the service provider or has been agreed several years before." Ref 5.2.15.1</p> <p>D. Incorrect. "The purpose of the problem management practice is to reduce the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors". Ref 5.2.8</p>
4	C	7.1.b	<p>A. Incorrect. While it can be used after deploying a change, this is not the main use of the change schedule. "The change schedule is used to help plan changes, assist in communication, avoid conflicts, and assign resources. It can also be used after changes have been deployed to provide information needed for incident management, problem management, and improvement planning." Ref 5.2.4</p> <p>B. Incorrect. "Emergency changes: These are changes that must be implemented as soon as possible; for example, to resolve an incident or implement a security patch. Emergency changes are not typically included in a change schedule, and the process for assessment and authorization is expedited to ensure they can be implemented quickly." Ref 5.2.4</p> <p>C. Correct. "The change schedule is used to help plan changes, assist in communication, avoid conflicts, and assign resources." Ref 5.2.4</p> <p>D. Incorrect. Standard changes are already pre-authorized and do not need to be included on a change schedule. "These are low-risk, pre-authorized changes that are well understood and fully documented, and can be implemented without needing additional authorization." Ref 5.2.4</p>

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Q	A	Syllabus Ref	Rationale
5	D	3.1.d	<p>A. Incorrect. The ‘organizations and people’ dimension describes “roles and responsibilities, formal organizational structures, culture, and required staffing and competencies.” Ref 3.1</p> <p>B. Incorrect. The ‘information and technology’ dimension includes “the information and knowledge necessary for the management of services, as well as the technologies required” and “the information created, managed, and used in the course of service provision and consumption, and the technologies that support and enable that service.” Ref 3.2</p> <p>C. Incorrect. “The partners and suppliers dimension encompasses an organization’s relationships with other organizations that are involved in the design, development, deployment, delivery, support and/or continual improvement of services. It also incorporates contracts and other agreements between the organization and its partners or suppliers”. Ref 3.3</p> <p>D. Correct. The ‘value streams and processes’ dimension “focuses on what activities the organization undertakes and how they are organized, as well as how the organization ensures that it is enabling value creation for all stakeholders efficiently and effectively.” Ref 3.4</p>
6	A	7.1.c	<p>A. Correct. “More complex incidents will usually be escalated to a support team for resolution. Typically, the routing is based on the incident category, which should help to identify the correct team.” Ref 5.2.5</p> <p>B. Incorrect. The category is concerned with the type of incident whereas priority is determined by business impact. “Incidents are prioritized based on agreed classification to ensure that incidents with the highest business impact are resolved first.” Ref 5.2.5</p> <p>C. Incorrect. “Every incident should be logged and managed to ensure that it is resolved in a time that meets the expectations of the customer and user.” Categorization by itself will not ensure this. Ref 5.2.5</p> <p>D. Incorrect. Customer and user satisfaction determines how the service provider is perceived. “Incident management can have an enormous impact on customer and user satisfaction, and on how customers and users perceive the service provider.” Ref 5.2.5</p>

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Q	A	Syllabus Ref	Rationale
7	B	1.1.a	<p>A. Incorrect. Warranty is “assurance that a product or service will meet agreed requirements.” Warranty of a service is necessary, but not sufficient to enable value co-creation. Ref 2.5.4</p> <p>B. Correct. A service is “a means of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks”. Ref 2.3.1</p> <p>C. Incorrect. Utility is “the functionality offered by a product or service”. Utility of a service is necessary, but not sufficient to enable value co-creation. Ref 2.5.4</p> <p>D. Incorrect. An output is “a tangible or intangible deliverable of an activity.” The output of a service is necessary, but not sufficient to enable value co-creation. Ref 2.5.1</p>
8	A	7.1.a	<p>A. Correct. “Although everyone should contribute in some way, there should at least be a small team dedicated full-time to leading continual improvement efforts and advocating the practice across the organization.” Ref 5.1.2</p> <p>B. Incorrect. “Different types of improvements may call for different improvement methods. For example, some improvements may be best organized into a multi-phase project, while others may be more appropriate as a single quick effort.” Ref 5.1.2</p> <p>C. Incorrect. “The continual improvement practice is integral to the development and maintenance of every other practice.” Ref 5.1.2</p> <p>D. Incorrect. “When third-party suppliers form part of the service landscape, they should also be part of the improvement effort.” Ref 5.1.2</p>
9	B	7.1.c	<p>A. Incorrect. “Target resolution times are agreed, documented, and communicated to ensure that expectations are realistic.” A good IT service management tool may help the organization to meet these times, but the tool cannot ensure that this happens. Furthermore, identifying the causes of incidents is a ‘problem management’ activity Ref 5.2.5</p> <p>B. Correct. “Modern IT service management tools can provide automated matching of incidents to other incidents, problems or known errors”. Ref 5.2.5</p> <p>C. Incorrect. ‘Incident management’ requires supplier contracts to be correctly aligned, but ensuring that the contracts are aligned is a purpose of the ‘supplier management’ practice. Ref 5.1.13</p> <p>D. Incorrect. “The most complex incidents, and all major incidents, often require a temporary team to work together to identify the resolution”. “Investigation of more complicated incidents often requires knowledge and expertise, rather than procedural steps.” Ref 5.2.5</p>

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Q	A	Syllabus Ref	Rationale
10	A	7.1.e	<p>A. Correct. “The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests...” and a service request is defined as “a request from a user or a user’s authorized representative that initiates a service action”. Ref 5.2.16</p> <p>B. Incorrect. A customer is “a person who defines the requirements for a service and takes responsibility for the outcomes of service consumption”. A customer could also be a user, and in that role they may submit a service request. Ref 2.2.2</p> <p>C. Incorrect. A sponsor is “A person who authorizes budget for service consumption.” A sponsor could also be a user, and in that role they may submit a service request. Ref 2.2.2</p> <p>D. Incorrect. “The partners and suppliers dimension encompasses an organization’s relationships with other organizations that are involved in the design, development, deployment, delivery, support, and/or continual improvement of services.”. This does not include consumption of services, and “The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests.” Ref 3.3</p>
11	C	7.1.f	<p>A. Incorrect. “The purpose of the incident management practice is to minimize the negative impact of incidents by restoring normal service operation as quickly as possible.” The ‘incident management’ practice does not provide a single point of contact for service users. Ref 5.2.5</p> <p>B. Incorrect. “The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule.” The ‘change control’ practice does not provide a single point of contact for service users. Ref 5.2.4</p> <p>C. Correct. “The purpose of the service desk practice is to capture demand for incident resolution and service requests. It should also be the entry point and single point of contact for the service provider with all of its users.” Ref 5.2.14</p> <p>D. Incorrect. “The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner.” The ‘service request management’ practice does not provide a single point of contact for service users. Ref 5.2.16</p>

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Q	A	Syllabus Ref	Rationale
12	A	2.2.e	<p>A. Correct. The ‘think and work holistically’ guiding principle advises that all aspects of an organization are considered when providing value in the form of services. This includes all four dimensions of service management (organizations and people; information and technology; partners and suppliers; value streams and processes). “Services are delivered to internal and external service consumers through the coordination and integration of the four dimensions of service management.” Ref 4.3.5</p> <p>B. Incorrect. The ‘progress iteratively with feedback’ guiding principle is concerned with breaking initiatives into manageable sections that can be executed more easily. It is not primarily concerned with addressing the four dimensions of service management. Ref 4.3.3</p> <p>C. Incorrect. The ‘focus on value’ guiding principle ensures that everything that the organization does links back to providing value to service consumers. It is not primarily concerned with addressing the four dimensions of service management. Ref 4.3.1</p> <p>D. Incorrect. The ‘keep it simple and practical’ guiding principle focuses on keeping things simple by reducing complexity and eliminating unnecessary activities and steps. It is not primarily concerned with addressing the four dimensions of service management. Ref 4.3.6</p>
13	B	7.1.e	<p>A. Incorrect. This would be supported by the ‘change control’ practice. A change is “the addition, modification, or removal of anything that could have a direct or indirect effect on services.” Normal changes “need to be scheduled, assessed, and authorized”. Ref 5.2.4</p> <p>B. Correct. A service request is “a request from a user or a user’s authorized representative that initiates a service action which has been agreed as a normal part of service delivery.” Ref 5.2.16</p> <p>C. Incorrect. This would be supported by the ‘incident management’ practice. An incident is “an unplanned interruption to a service or reduction in the quality of a service.” Ref 5.2.5</p> <p>D. Incorrect. This would be supported by the ‘problem management’ practice. A problem is “a cause, or potential cause, of one or more incidents”. Ref 5.2.8</p>

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Q	A	Syllabus Ref	Rationale
14	D	7.1.a	<p>A. Incorrect. The ‘service level management’ practice is not the responsibility of everyone in the organization. A number of roles are required but there is no fixed structure. It is recommended that there is an independent and non-aligned role where possible. Ref 5.2.15</p> <p>B. Incorrect. The ‘change control’ practice is not the responsibility of everyone in the organization. Many roles can be assigned to change control such as change authority. It also requires input from people with specialist knowledge. Ref 5.2.4</p> <p>C. Incorrect. The ‘problem management’ practice is not the responsibility of everyone in the organization. Most problem management activity relies on the knowledge and experience of staff. Ref 5.2.8</p> <p>D. Correct. “continual improvement is everyone’s responsibility” and “The commitment to and practice of continual improvement must be embedded into every fibre of the organization”. Ref 5.1.2</p>
15	D	6.1.a	<p>A. Incorrect. “The purpose of the information security management practice is to protect the information needed by the organization to conduct its business. This includes understanding and managing risks to the confidentiality, integrity, and availability of information, as well as other aspects of information security such as authentication (ensuring someone is who they claim to be) and non-repudiation (ensuring that someone can’t deny that they took an action).” Ref 5.1.3</p> <p>B. Incorrect. “The purpose of the information security management practice is to protect the information needed by the organization to conduct its business. This includes understanding and managing risks to the confidentiality, integrity and availability of information, as well as other aspects of information security such as authentication (ensuring someone is who they claim to be) and non-repudiation (ensuring that someone can’t deny that they took an action).” Ref 5.1.3</p> <p>C. Incorrect. “The purpose of the information security management practice is to protect the information needed by the organization to conduct its business. This includes understanding and managing risks to the confidentiality, integrity and availability of information, as well as other aspects of information security such as authentication (ensuring someone is who they claim to be) and non-repudiation (ensuring that someone can’t deny that they took an action).” Ref 5.1.3</p> <p>D. Correct. “The purpose of the information security management practice is to protect the information needed by the organization to conduct its business. This includes understanding and managing risks to the confidentiality, integrity and availability of information, as well as other aspects of information security such as authentication (ensuring someone is who they claim to be) and non-repudiation (ensuring that someone can’t deny that they took an action).” Ref 5.1.3</p>

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Q	A	Syllabus Ref	Rationale
16	B	2.2.b	<p>A. Incorrect. The 'focus on value' guiding principle states that "All activities conducted by the organization should link back, directly or indirectly, to value for itself, its customers, and other stakeholders." Ref 4.3.1</p> <p>B. Correct. The 'start where you are' guiding principle recommends that "Services and methods already in place should be measured and/or observed directly to properly understand their current state and what can be reused from them... Getting data from the source helps to avoid assumptions which, if proven to be unfounded, can be disastrous to timelines, budgets and the quality of results." Ref 4.3.2</p> <p>C. Incorrect. The 'keep it simple and practical' guiding principle states that an organization should "Always use the minimum number of steps needed to accomplish an objective." Ref 4.3.6</p> <p>D. Incorrect. The 'progress iteratively with feedback principle states that "By organizing work into smaller, manageable sections that can be executed and completed in a timely manner, the focus on each effort will be sharper and easier to maintain." Ref 4.3.3</p>
17	C	7.1.c	<p>A. Incorrect. "There may be scripts for collecting information from users during initial contact". Ref 5.2.5</p> <p>B. Incorrect. "There should be a formal process for logging and managing incidents." Ref 5.2.5</p> <p>C. Correct. "This process does NOT usually include detailed procedures for how to diagnose, investigate, and resolve incidents." Ref 5.2.5</p> <p>D. Incorrect. "Investigation of more complicated incidents often requires knowledge and expertise, rather than procedural steps." Ref 5.2.5</p>
18	A	2.1	<p>A. Correct. A guiding principle is defined as a recommendation that can guide an organization in all circumstances and will guide organizations when adopting service management. They are not described as prescriptive or mandatory. Ref 4.3</p> <p>B. Incorrect. The guiding principles will be reviewed and adopted by organizations. The guiding principles guide organizations to make decisions and adopt actions. They do not mandate specific actions and decisions. Ref 4.3.8</p> <p>C. Incorrect. Organizations will use the principles relevant to them and are not mandated to use a given number. Ref 4.3</p> <p>D. Incorrect. The guiding principles guide organizations to make decisions and adopt actions. They are not mandatory. Ref 4.3</p>

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Q	A	Syllabus Ref	Rationale
19	B	7.1.b	<p>A. Incorrect. "It is essential that the correct change authority is assigned to each type of change to ensure that change control is both efficient and effective." For normal changes, "change models based on the type of change determine the roles for assessment and authorization". A single change authority is inadequate. Ref 5.2.4</p> <p>B. Correct. "It is essential that the correct change authority is assigned to each type of change to ensure that change control is both efficient and effective." For normal changes, "change models based on the type of change determine the roles for assessment and authorization". Ref 5.2.4</p> <p>C. Incorrect. Normal changes are "changes that need to be scheduled, assessed, and authorized following a process." Thus, all normal changes will be authorized by a change authority. Standard changes can be pre-authorized: "These are low-risk, pre-authorized changes that are well understood and fully documented, and can be implemented without needing additional authorization". Ref 5.2.4</p> <p>D. Incorrect. "Emergency changes are not typically included in a change schedule, and the process for assessment and authorization is expedited to ensure they can be implemented quickly." Therefore, all emergency changes will be authorized by a change authority. Ref 5.2.4</p>
20	C	6.1.f	<p>A. Incorrect. "The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule." Ref 5.2.4</p> <p>B. Incorrect. "The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner". Ref 5.2.16</p> <p>C. Correct. "The purpose of the release management practice is to make new and changed services and features available for use". Ref 5.2.9</p> <p>D. Incorrect. "The purpose of the deployment management practice is to move new or changed hardware, software, documentation, processes, or any other component to live environments." Ref 5.3.1</p>

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Q	A	Syllabus Ref	Rationale
21	B	5.2.a	<p>A. Incorrect. The purpose of the ‘improve’ value chain activity is “to ensure continual improvement of products, services, and practices across all value chain activities and the four dimensions of service management.” Ref 4.5.2</p> <p>B. Correct. The purpose of the ‘plan’ value chain activity is “to ensure a shared understanding of the vision, current status, and improvement direction for all four dimensions and all products and services across the organization.” Ref 4.5.1</p> <p>C. Incorrect. The purpose of the ‘deliver and support’ value chain activity is “to ensure that services are delivered and supported according to agreed specifications and stakeholders’ expectations.” Ref 4.5.6</p> <p>D. Incorrect. The purpose of the ‘obtain/build’ value chain activity is “to ensure that service components are available when and where they are needed, and meet agreed specifications.” Ref 4.5.5</p>
22	D	5.1	<p>A. Incorrect. “Value chain activities use different combinations of ITIL practices”. No practice belongs to a single value chain activity. Ref 4.5</p> <p>B. Incorrect. Service value streams are “specific combinations of activities and practices, and each one is designed for a particular scenario” and “Service relationships include service provision, service consumption, and service relationship management.” Ref 4.5, 2.4.1</p> <p>C. Incorrect. Service value streams are “specific combinations of activities and practices, and each one is designed for a particular scenario.” There can be multiple service value streams within one service value chain. Ref 4.5</p> <p>D. Correct. “These activities represent the steps an organization takes in the creation of value. Each activity transforms inputs into outputs. These inputs can be demand from outside the value chain or outputs of other activities. All the activities are interconnected, with each activity receiving and providing triggers for further action.” Ref 4.5</p>

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Q	A	Syllabus Ref	Rationale
23	A	6.1.c	<p>A. Correct. “The purpose of the supplier management practice is to ensure that the organization’s suppliers and their performance are managed appropriately to support the seamless provision of quality products and services”. Ref 5.1.13</p> <p>B. Incorrect. “The purpose of the continual improvement practice is to align the organization’s practices and services with changing business needs through the ongoing improvement of products, services, and practices, or any element involved in the management of products and services.” This is not the purpose of the ‘supplier management’ practice. An organization is unlikely to change its practices to suit a supplier’s needs. Ref 5.1.2</p> <p>C. Incorrect. “The purpose of the relationship management practice is to establish and nurture the links between the organization and its stakeholders at strategic and tactical levels”. This is not the purpose of the ‘supplier management’ practice. Ref 5.1.9</p> <p>D. Incorrect. “The purpose of the service configuration management practice is to ensure that accurate and reliable information about the configuration of services, and the CIs that support them, is available when and where it is needed”. This is not the purpose of the ‘supplier management’ practice. Ref 5.2.11</p>
24	B	1.2.a	<p>A. Incorrect. The price of the service is only part of the costs imposed on the consumer. The cost of creating the service is a concern of the service provider, not the service consumer. The service consumer should also evaluate the costs removed from the consumer. Ref 2.5.2</p> <p>B. Correct. From the service consumer’s perspective, there are two types of costs involved in service relationships:</p> <ol style="list-style-type: none"> 1. Costs removed from the service consumer by the service (a part of the value proposition). This may include costs of staff, technology, and other resources which are not needed by the consumer. 2. Costs imposed on the consumer by the service (the costs of service consumption). The total cost of consuming a service includes the price charged by the service provider (if any), plus other costs such as staff training, costs of network utilization, procurement, etc. Ref 2.5.2 <p>C. Incorrect. C. The cost of provisioning the service, and the cost of improving the service are concerns of the service provider, not the service consumer. The service consumer should evaluate the costs removed from the consumer and the costs imposed on the consumer. Ref 2.5.2</p> <p>D. Incorrect. The two types of cost that a service consumer should evaluate are costs removed from the consumer and costs imposed on consumers. The cost of hardware and software may be included in either of these, but will only be part of that cost. Ref 2.5.2</p>

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Q	A	Syllabus Ref	Rationale
25	C	6.1.n	<p>A. Incorrect. “The purpose of the problem management practice is to reduce the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors.” Ref 5.2.8</p> <p>B. Incorrect. “The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule.” Ref 5.2.4</p> <p>C. Correct. “The purpose of the service desk practice is to capture demand for incident resolution and service requests. It should also be the entry point and single point of contact for the service provider with all of its users.” Ref 5.2.14</p> <p>D. Incorrect. “The purpose of the service level management practice is to set clear business-based targets for service performance, so that the delivery of a service can be properly assessed, monitored, and managed against these targets.” Ref 5.2.1.5</p>
26	B	7.1.a	<p>A. Incorrect. The guidance describes how there are many methods that can be used for improvement initiatives and warns against using too many. It further states that “Different types of improvement may call for different improvement methods”. Therefore, using a new method each time is inappropriate. Ref 5.1.2</p> <p>B. Correct. The guidance describes how there are many methods that can be used for improvement initiatives and warns against using too many. The guidance states “It is a good idea to select a few key methods that are appropriate to the types of improvement the organization typically handles and to cultivate those methods”. Ref 5.1.2</p> <p>C. Incorrect. The guidance describes how there are many methods that can be used for improvement initiatives and warns against using too many. Ref 5.1.2</p> <p>D. Incorrect. The guidance describes how there are many methods that can be used for improvement initiatives and warns against using too many. It further states that “Different types of improvements may call for different improvement methods”. Therefore, selecting a single method is inappropriate. Ref 5.1.2</p>
27	D	4.1	<p>A. Incorrect. The seven guiding principles are ‘focus on value’, ‘start where you are’, ‘progress iteratively with feedback’, ‘collaborate and promote visibility’, ‘think and work holistically’, ‘keep it simple and practical’ and ‘optimize and automate’. Ref 4.3</p> <p>B. Incorrect. The four dimensions of service management are ‘organizations and people’, ‘information and technology’, ‘partners and suppliers’, and ‘value streams and processes’. Ref 3.1-3.4</p> <p>C. Incorrect. The activities of the service value chain are ‘plan’, ‘improve’, ‘engage’, ‘design and transition’, ‘obtain/build’, and ‘deliver and support’. Ref 4.5</p> <p>D. Correct. The components of the service value system are ‘guiding principles’, ‘governance’, ‘service value chain’, ‘practices’, and ‘continual improvement’. Ref 4.1</p>

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Q	A	Syllabus Ref	Rationale
28	C	7.1.f	<p>A. Incorrect. "With increased automation, AI, robotic process automation (RPA), and chatbots, service desks are moving to provide more self-service logging and resolution directly via online portals and mobile applications." Ref 5.2.14</p> <p>B. Incorrect. "The service desk may not need to be highly technical, although some are." Ref 5.2.14</p> <p>C. Correct. "Another key aspect of a good service desk is its practical understanding of the wider organization, the business processes, and the users." Ref 5.2.14</p> <p>D. Incorrect. "In some cases, the service desk is a tangible team, working in a single location... In other cases, a virtual service desk allows agents to work from multiple locations, geographically dispersed." Ref 5.2.14</p>
29	C	2.2.c	<p>A. Incorrect. The 'Focus on value' guiding principle helps to ensure that you consider all aspects of value for the service consumer, as well as the service provider and other stakeholders. It does not specifically describe organizing work into smaller, manageable sections that can be executed and completed in a timely manner. Ref 4.3.1</p> <p>B. Incorrect. The 'Start where you are' guiding principle helps to avoid waste and leverage existing services, processes, people, tools, etc. It does not specifically describe organizing work into smaller, manageable sections that can be executed and completed in a timely manner. Ref 4.3.2</p> <p>C. Correct. The description of the 'progress iteratively with feedback' guiding principle says "by organizing work into smaller, manageable sections that can be executed and completed in a timely manner, the focus on each effort will be sharper and easier to maintain." Ref 4.3.3</p> <p>D. Incorrect. The 'collaborate and promote visibility' guiding principle helps to involve the right people and provide better decision-making and greater likelihood of success. It does not specifically describe organizing work into smaller, manageable sections that can be executed and completed in a timely manner. Ref 4.3.4</p>

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Q	A	Syllabus Ref	Rationale
30	A	7.1.b	<p>A. Correct. “These are low-risk, pre-authorized changes that are well understood and fully documented, and can be implemented without needing additional authorization. They are often initiated as service requests, but may also be operational changes. When the procedure for a standard change is created or modified, there should be a full risk assessment and authorization as for any other change. This risk assessment does not need to be repeated each time the standard change is implemented; it only needs to be done if there is a modification to the way it is carried out.” Ref 5.2.4</p> <p>B. Incorrect. Normal changes are “changes that need to be scheduled, assessed, and authorized.” Ref 5.2.4</p> <p>C. Incorrect. An emergency change that is needed to resolve an incident should still be assessed and authorized. “As far as possible, emergency changes should be subject to the same testing, assessment, and authorization as normal changes”. Ref 5.2.4</p> <p>D. Incorrect. This is a description of a normal change: “changes that need to be scheduled, assessed, and authorized”. Ref 5.2.4</p>
31	C	7.1.d	<p>A. Incorrect. A change request is only raised if it is justified. “Error control also includes identification of potential permanent solutions which may result in a change request for implementation of a solution, but only if this can be justified in terms of cost, risks, and benefits”. Ref 5.2.8</p> <p>B. Incorrect. The ‘incident management’ practice restores service not the ‘problem management’ practice. “The purpose of the incident management practice is to minimize the negative impact of incidents by restoring normal service operation as quickly as possible.” . Ref 5.2.5</p> <p>C. Correct. “An effective incident workaround can become a permanent way of dealing with some problems when resolving the problem is not viable or cost-effective. In this case, the problem remains in the known error status, and the documented workaround is applied should related incidents occur”. Ref 5.2.8</p> <p>D. Incorrect. The problem record is not deleted. “Workarounds are documented in problem records”. “.. the problem remains in the known error status, and the documented workaround is applied should related incidents occur”. Ref 5.2.8</p>

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Q	A	Syllabus Ref	Rationale
32	A	6.2.d	<p>A. Correct. A change is the “addition, modification, or removal of anything that could have a direct or indirect effect on services”. Ref 5.2.4</p> <p>B. Incorrect. “The purpose of the service configuration management practice is to ensure that accurate and reliable information about the configuration of services, and the CIs that support them, is available when and where it is needed.” Ref 5.2.11</p> <p>C. Incorrect. “The purpose of the release management practice is to make new and changed services and features available for use”. Ref 5.2.9</p> <p>D. Incorrect. “The purpose of the deployment management practice is to move new or changed hardware, software, documentation, processes, or any other component to live environments.” Ref 5.3.1</p>
33	A	6.2.b	<p>A. Correct. “An event can be defined as any change of state that has significance for the management of a service or other configuration item (CI)”. Ref 5.2.7</p> <p>B. Incorrect. The definition of a configuration item is “any component that needs to be managed in order to deliver an IT service.” Ref 5.2.11</p> <p>C. Incorrect. An incident is “An unplanned interruption to a service or reduction in the quality of a service.” Ref 5.2.5</p> <p>D. Incorrect. An IT asset is “Any financially valuable component that can contribute to the delivery of an IT product or service.” Ref 5.2.11</p>
34	C	1.2.d	<p>A. Incorrect. “A tangible or intangible deliverable of an activity” is the definition of an output, not an outcome. Ref 2.5.1</p> <p>B. Incorrect. “The functionality offered by a product or service to meet a particular need” is the definition of utility, not an outcome. The utility of the service may facilitate outcomes. Ref 2.5.4</p> <p>C. Correct. An outcome is “a result for a stakeholder enabled by one or more outputs”. The definition of a service describes how the value of a service enables value co-creation by facilitating outcomes that customers want to achieve. Ref 2.5.1</p> <p>D. Incorrect. A product is “a configuration of an organization’s resources designed to offer value for a consumer.” Ref 2.3.1</p>

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Q	A	Syllabus Ref	Rationale
35	D	3.1.b	<p>A. Incorrect. “The challenges of information management, such as those presented by security and regulatory compliance requirements, are also a focus of [the ‘information and technology] dimension”. Ref 3.2</p> <p>B. Incorrect. “The technologies that support service management include, but are not limited to, workflow management systems, knowledge bases, inventory systems, communication systems, and analytical tools”. Ref 3.2</p> <p>C. Incorrect. “The technologies that support service management include, but are not limited to, workflow management systems, knowledge bases, inventory systems, communication systems, and analytical tools.” Ref 3.2</p> <p>D. Correct. “The organizations and people dimension of a service covers roles and responsibilities, formal organizational structures, culture, and required staffing and competencies, all of which are related to the creation, delivery, and improvement of a service.” Ref 3.1</p>
36	D	7.1.d	<p>D. Correct.</p> <p>(1) “Problem management activities can identify improvement opportunities in all four dimensions of service management. Solutions can in some cases be treated as improvement opportunities, so they are included in a continual improvement register (CIR), and continual improvement techniques are used to prioritize and manage them.”</p> <p>(4) “Error control also includes identification of potential permanent solutions which may result in a change request for implementation of a solution.” Ref 5.2.8</p> <p>A, B C. Incorrect.</p> <p>(2) “The purpose of the service request management practice is to support the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner.” Ref 5.2.16</p> <p>(3) “The purpose of the service level management practice is to set clear business-based targets for service levels, and to ensure that delivery of services is properly assessed, monitored, and managed against these targets.”</p>

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Q	A	Syllabus Ref	Rationale
37	B	2.2.f	<p>A. Incorrect. “Trying to provide a solution for every exception will often lead to over-complication. When creating a process or a service, designers need to think about exceptions, but they cannot cover them all. Instead, rules should be designed that can be used to handle exceptions generally.” Ref 4.3.6</p> <p>B. Correct. The ‘keep it simple and practical’ guiding principle states: “When analyzing a practice, process, service, metric, or other improvement target, always ask whether it contributes to value creation.” Ref 4.3.6.1</p> <p>C. Incorrect. “When designing, managing, or operating practices, be mindful of conflicting objectives … the organization should agree on a balance between its competing objectives.” Ref 4.3.6.2</p> <p>D. Incorrect. “It is better to start with an uncomplicated approach and then carefully add controls, activities, or metrics when it is seen that they are truly needed.” Ref 4.3.6.1</p>
38	C	2.2.a	<p>A. Incorrect. It is essential to determine who the service consumer is, and what they value. The outcomes should be based on this understanding, rather than determining them. “The first step in focusing on value is knowing who is being served. In each situation the service provider must, therefore, determine who the service consumer is”. Ref 4.3.1.1</p> <p>B. Incorrect. Suppliers and partners are possible stakeholders, but it is important to identify the service consumer first. “The first step in focusing on value is knowing who is being served. In each situation the service provider must, therefore, determine who the service consumer is”. Ref 4.3.1.1</p> <p>C. Correct. “The first step in focusing on value is knowing who is being served. In each situation the service provider must, therefore, determine who the service consumer is”. Ref 4.3.1.1</p> <p>D. Incorrect. The cost of providing the service may have some impact on the value from the perspective of the service provider. But “The first step in focusing on value is knowing who is being served. In each situation the service provider must, therefore, determine who the service consumer is”. Ref 4.3.1.1</p>

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Q	A	Syllabus Ref	Rationale
39	D	1.3.a	<p>A. Incorrect. The combination of things described in this option may help to create value, but it is not an example of value. Value is “the perceived benefits, usefulness and importance of something.” Ref 2.1</p> <p>B. Incorrect. The combination of things described in this option may help to create an outcome, but it is not an example of an outcome. Outcome is “a result for a stakeholder enabled by one or more outputs.” Ref 2.5.1</p> <p>C. Incorrect. Warranty is “assurance that a product or service will meet agreed requirements.” New functionality may or may not affect warranty. Ref 2.5.4</p> <p>D. Correct. Service providers define combinations of goods, access to resources and service actions, to address the needs of different consumer groups. These combinations are called service offerings. Ref 2.3.2</p>
40	B	1.1.c	<p>A. Incorrect. An output is “A tangible or intangible deliverable of an activity”. Ref 2.5.1</p> <p>B. Correct. Warranty is “assurance that a product or service will meet agreed requirements.” Ref 2.5.4</p> <p>C. Incorrect. A risk is “a possible event that could cause harm or loss, or make it more difficult to achieve objectives”. Ref 2.5.3</p> <p>D. Incorrect. Utility is “the functionality offered by a product or service to meet a particular need”. Ref 2.5.4</p>

ITIL® 4 Foundation Candidate Syllabus

January 2019

Introduction

The ITIL 4 Foundation qualification is intended to introduce candidates to the management of modern IT-enabled services, to provide them with an understanding of the common language and key concepts, and to show them how they can improve their work and the work of their organization with ITIL 4 guidance. Furthermore, the qualification will provide the candidate with an understanding of the ITIL 4 service management framework and how it has evolved to adopt modern technologies and ways of working.

The ITIL 4 Foundation examination is intended to assess whether the candidate can demonstrate sufficient recall and understanding of the ITIL 4 service management framework, as described in the syllabus below, to be awarded the ITIL 4 Foundation qualification. The ITIL 4 Foundation qualification is a prerequisite for the ITIL 4 higher level qualifications, which assess the candidate's ability to apply their understanding of the relevant parts of the ITIL framework in context.

Exam Overview

Material allowed	None	This is a 'closed book' exam. The <i>ITIL Foundation</i> publication, ITIL 4 edition, should be used for study, but is NOT permitted to be used in the exam.
Exam duration	60 minutes	Candidates taking the exam in a language that is not their native or working language may be awarded 25% extra time, i.e. 75 minutes in total.
Number of marks	40 marks	There are 40 questions, each worth 1 mark. There is no negative marking.
Provisional Pass mark	26 marks	You will need to get 26 questions correct (65%) to pass the exam.
Level of thinking	Bloom's levels 1 & 2	"Bloom's level" describes the type of thinking needed to answer the question. For Bloom's level 1 questions, you need to <u>recall</u> information about the ITIL 4 service management framework. For Bloom's 2 questions, you need to show <u>understanding</u> of these concepts.
Question types	Classic, Negative, Missing word, & List	<p>The questions are all 'multiple choice'.</p> <p>For the 'standard' questions, you have a question and four answer options.</p> <p>'Negative' questions are 'standard' question in which the stem is negatively worded.</p> <p>For the 'missing word' questions, there is a sentence with a word missing and you have to select the missing word from four options.</p> <p>For the 'list' questions, there is a list of four statements and you have to select two correct statements from the list.</p>

Question Types

Example ‘standard’ OTQ:

Which is a source of best practice?

- a) Q
- b) P
- c) R
- d) S

Example ‘list’ OTQ:

Which statement about service asset and configuration management is CORRECT?

1. It does Q
 2. It does P
 3. It does R
 4. It does S
- a) 1 and 2
 - b) 2 and 3
 - c) 3 and 4
 - d) 1 and 4

NOTE: Two of the list items are correct. List style questions are never negative.

Please see the sample paper for an example of the exam format and content.

Example ‘missing word’ OTQ

Identify the missing word(s) in the following sentence.

A [?] defines requirements for services and takes responsibility for outcomes from service consumption.

- a) Role Q
- b) Role P
- c) Role R
- d) Role S

Example ‘negative’ standard OTQ:

Which is NOT a defined area of value?

- a) Q
- b) P
- c) R
- d) S

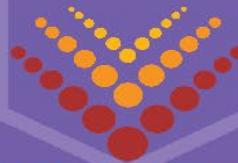
NOTE: Negative questions are **only used as an exception**, where part of the learning outcome is to know that something is not done or should not occur.

Syllabus

The table below gives a summary of the concepts that are tested in the exam, and the main parts of the manual in which these are described. The book references refer to the section stated, but not the subsections within that section, unless stated. The verb for each assessment criterion indicates the Bloom's level (BL): 'Recall'/'Define' indicates Level 1 basic recall and recognition, 'Describe'/'Explain', indicates Level 2 understanding/comprehension.

Learning Outcome	Assessment Criteria	Book References	Bloom's Level	No. marks
1. Understand the key concepts of service management	1.1 Recall the definition of: a) Service b) Utility c) Warranty d) Customer e) User f) Service management g) Sponsor	2.0, 2.2.2, 2.3.1, 2.5.4	BL1	2
	1.2 Describe the key concepts of creating value with services: a) Cost b) Value c) Organization d) Outcome e) Output f) Risk g) Utility h) Warranty	2.1, 2.1.1, 2.2 and all subsections of 2.5	BL2	2
	1.3 Describe the key concepts of service relationships: a) Service offering b) Service relationship management c) Service provision d) Service consumption	2.3.2, 2.4, 2.4.1	BL2	1
2. Understand how the ITIL guiding principles can help an organization adopt and adapt service management	2.1 Describe the nature, use and interaction of the guiding principles	4.3, 4.3.8	BL2	1
	2.2 Explain the use of the guiding principles (4.3): a) Focus on value (4.3.1 - 4.3.1.4) b) Start where you are (4.3.2 - 4.3.2.3) c) Progress iteratively with feedback (4.3.3 - 4.3.3.3) d) Collaborate and promote visibility (4.3.4 - 4.3.4.4) e) Think and work holistically (4.3.5 - 4.3.5.1) f) Keep it simple and practical (4.3.6 - 4.3.6.3) g) Optimize and automate (4.3.7 - 4.3.7.3)	4.3, 4.3.1- 4.3.7.3	BL2	5
3. Understand the four dimensions of service management	3.1 Describe the four dimensions of service management (3): a) Organizations and people (3.1) b) Information and technology (3.2) c) Partners and suppliers (3.3) d) Value streams and processes (3.4-3.4.2)	3, 3.1-3.4.2	BL2	2
4. Understand the purpose and components of the ITIL service value system	4.1 Describe the ITIL service value system (4.1)	4.1	BL2	1
5. Understand the activities of the service value chain, and how they interconnect	5.1 Describe the interconnected nature of the service value chain and how this supports value streams (4.5)	4.5	BL2	1

Learning Outcome	Assessment Criteria	Book References	Bloom's Level	No. marks
	5.2 Describe the purpose of each value chain activity: a) Plan b) Improve c) Engage d) Design & transition e) Obtain/build f) Deliver & support	4.5.1-4.5.6	BL2	1
6. Know the purpose and key terms of 15 ITIL practices	6.1 Recall the purpose of the following ITIL practices: a) Information security management (5.1.3) b) Relationship management (5.1.9) c) Supplier management (5.1.13) d) IT asset management (5.2.6) e) Monitoring and event management (5.2.7) f) Release management (5.2.9) g) Service configuration management (5.2.11) h) Deployment management (5.3.1) i) Continual improvement (5.1.2) j) Change control (5.2.4) k) Incident management (5.2.5) l) Problem management (5.2.8) m) Service request management (5.2.16) n) Service desk (5.2.14) o) Service level management (5.2.15)	5.1.2, 5.1.3, 5.1.9, 5.1.13, 5.2.4, 5.2.5, 5.2.6, 5.2.7, 5.2.8, 5.2.9, 5.2.11, 5.2.14, 5.2.15, 5.2.16, 5.3.1,	BL1	5
	6.2 Recall definitions of the following ITIL terms: a) IT asset b) Event c) Configuration item d) Change e) Incident f) Problem g) Known error	5.2.4, 5.2.5, 5.2.6, 5.2.7, 5.2.8, 5.2.11	BL1	2
7. Understand 7 ITIL practices	7.1 Explain the following ITIL practices in detail, excluding how they fit within the service value chain: a) Continual improvement (5.1.2) including: - The continual improvement model (4.6, fig 4.3) b) Change control (5.2.4) c) Incident management (5.2.5) d) Problem management (5.2.8) e) Service request management (5.2.16) f) Service desk (5.2.14) g) Service level management (5.2.15 - 5.2.15.1)	4.6, fig 4.3, 5.1.2, 5.2.4, 5.2.5, 5.2.8, 5.2.16, 5.2.14, 5.2.15, 5.2.15.1	BL2	17



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