

# QITIL<sup>®4</sup> training course

FOUNDATION

The diagram illustrates the QITIL 4 Foundation training course structure. It features two main hexagonal models:

- Service Value Chain Hexagon:** This model consists of five interconnected components: 1. Guiding principles, 2. Governance, 3. Service value chain, 4. Practices, and 5. Continual improvement. It is connected to an "Opportunity and demand" input on the left and a "Value" output on the right.
- Business Environment Hexagon:** This model consists of four interconnected components: 1. Organizations and people, 2. Information and technology, 3. Partners and suppliers, and 4. Value streams and processes. It is surrounded by various external factors: Environmental factors (top-left), Economic factors (top-right), Social factors (bottom-right), Technological factors (bottom-left), Legal factors (center-left), and Political factors (center-right). A central circle labeled "Products and services" is connected to the business environment hexagon. A note states: "Factors Every dimension is affected by multiple factors".

**Day 03**

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# Agenda

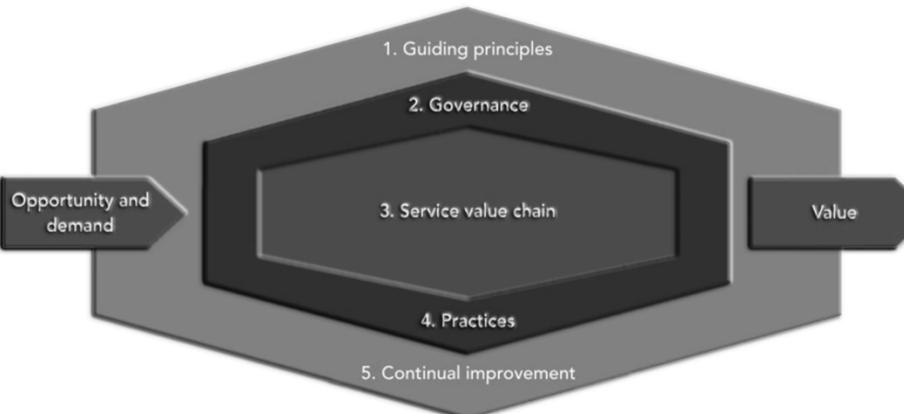
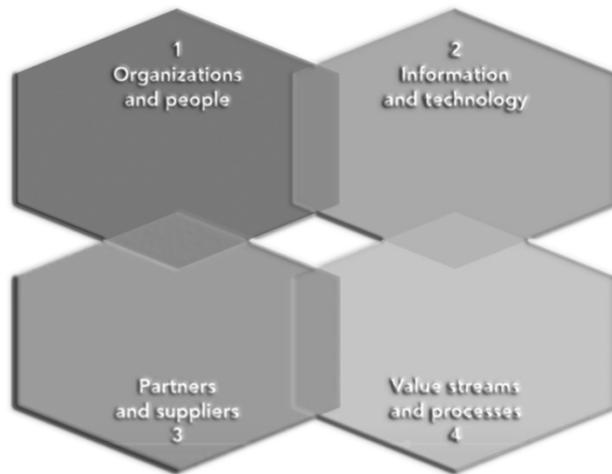
- Wrap-up
- Understanding the basics for ITIL practices
- General practices
- Service practices
- Technical practices

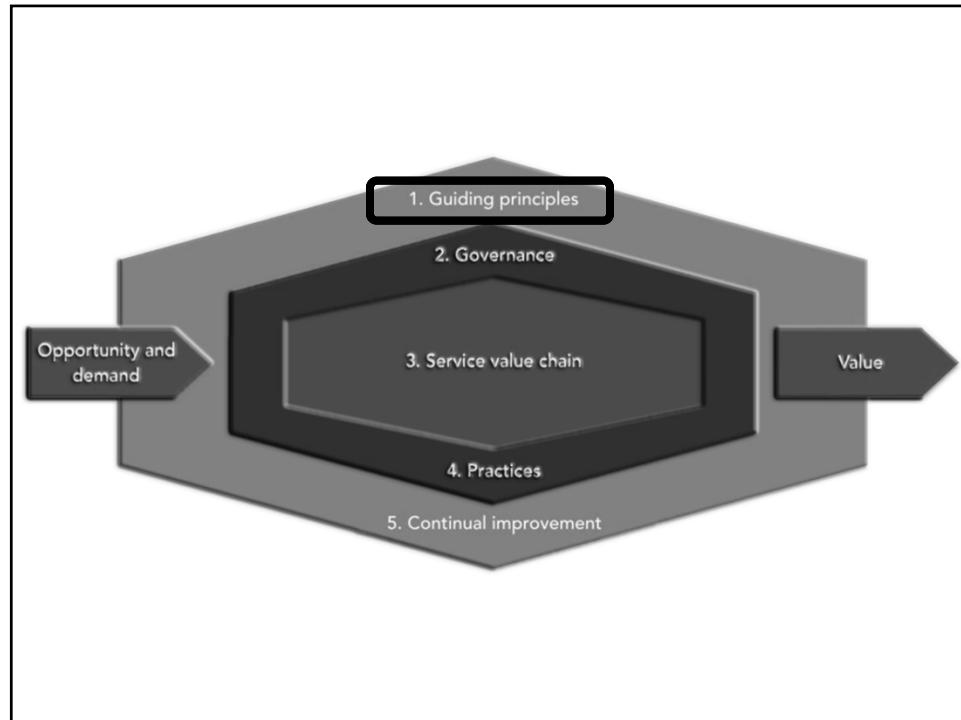


## Wrap-up



## ITIL®: Four Dimensions of Service Management





Seven Guiding Principles	Nine Guiding Principles
<ul style="list-style-type: none"> <li>1. Focus on value</li> <li>2. Collaborate and promote visibility</li> <li>3. Start where you are</li> <li>4. Think and work holistically</li> <li>5. Progress iteratively with feedback</li> <li>6. Keep it simple and practical</li> <li>7. Optimize and automate</li> </ul>	<ul style="list-style-type: none"> <li>1. Focus on value</li> <li>2. Design for experience</li> <li>3. Start where you are</li> <li>4. Work holistically</li> <li>5. Progress iteratively</li> <li>6. Observe directly</li> <li>7. Keep it simple</li> <li>8. Collaborate</li> <li>9. Be transparent</li> </ul>

## Seven Guiding Principles

- Focus on value
- Collaborate and promote visibility
- Start where you are
- Think and work holistically
- Progress iteratively with feedback
- Keep it simple and practical
- Optimize and automate

### 1. Focus on Value

- Everything we do must add value from the stakeholders' perspective

## **2. Start Where You Are**

- Don't start from scratch—leverage what's already available
- Observe directly and fully understand the current state first

## **3. Progress Iteratively with Feedback**

- Don't try to do everything at once
- Organize work into smaller, manageable chunks done more often
- Use feedback in each iteration to ensure actions are appropriate

## 4. Collaborate and Promote Visibility

- Work together across boundaries for more buy-in and success
- Share information and build understanding and trust
- Make work and consequences visible

## 5. Think and Work Holistically

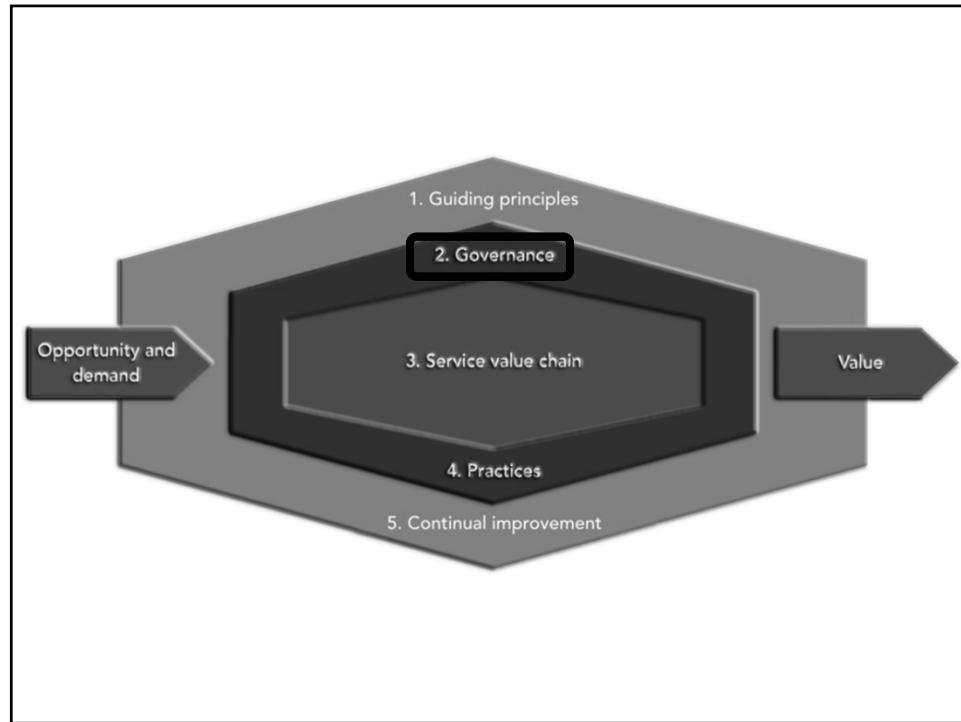
- Work on the service, not just its parts
- Integrate information, technology, organization, people, practices, partners, and agreements

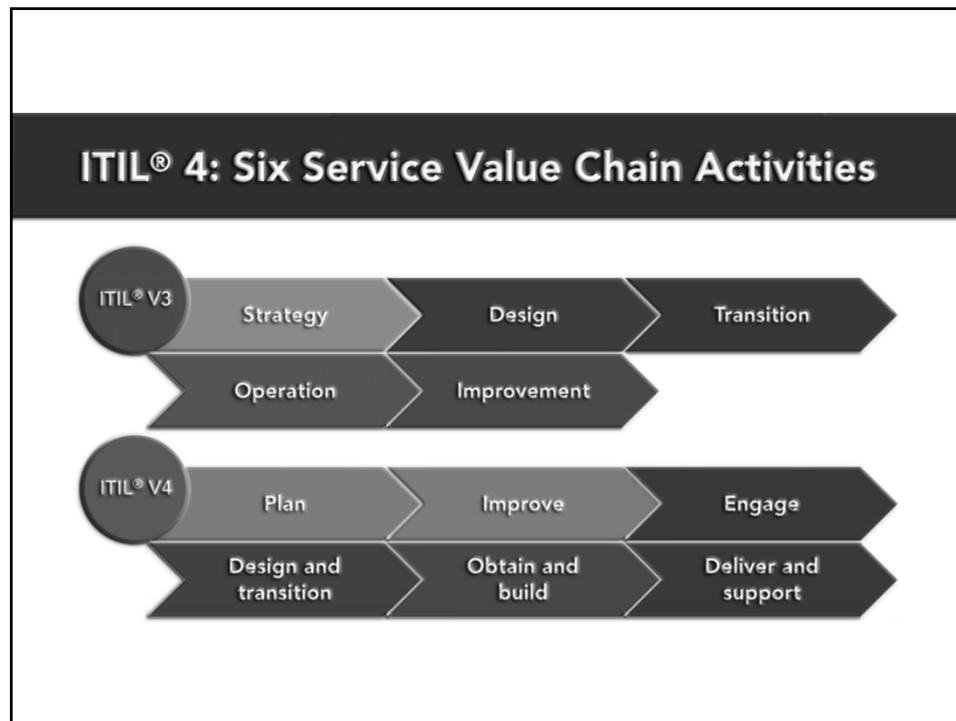
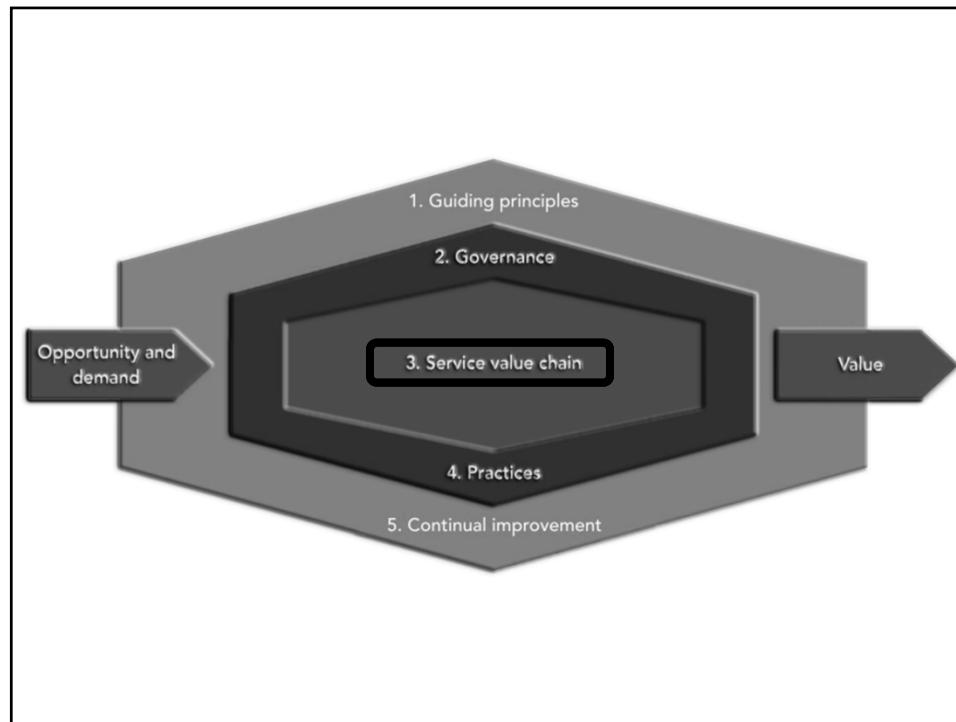
## **6. Keep It Simple and Practical**

- Eliminate anything that provides no value
- Use the minimum number of steps to accomplish objective(s)
- Use outcome-based thinking for practical solutions and results

## **Optimize and Automate**

- Use resources, particularly human resources, to best effect
- Eliminate anything wasteful
- Use technology to achieve whatever it can do
- Only use human intervention where it adds value





# The ITIL® Service Value Chain



## Plan

Foster a shared understanding of the vision, improvement direction, and status of all dimensions of service management, products, and services.



## **Improve**

Ensure continual improvement of products, services, and practices across all value chain activities and service management dimensions.



## **Engage**

Foster a good understanding of stakeholder needs, transparency, and continual engagement, and good relationships with all stakeholders.



## Design and Transition

Ensure products and services continually meet stakeholder expectations for quality, costs, and time-to-market.



## Obtain and Build

Ensure service components are available when needed and meet agreed specifications.



## Deliver and Support

Ensure services are delivered and supported according to agreed specifications and stakeholders' expectations.

## ITIL V3/2011 edition 26 processes and 4 functions

Service Strategy



Service Portfolio Management

Demand Management  
Relationship Management  
Financial Management

Service Design



Service Level Management  
Information Security Management  
Availability Management

Service Transition



Change Management  
Evaluation  
Service Transition & Testing  
Transition Planning & Support

Service Operation



Access Management  
Request Fulfillment  
Service Desk Function  
Application Management Function  
Technical Management Function  
Problem Management

Service Improvement



Process New to ITIL 2011 Edition

V2

V3

V3

V2

# Main 18 ITIL V4 practices

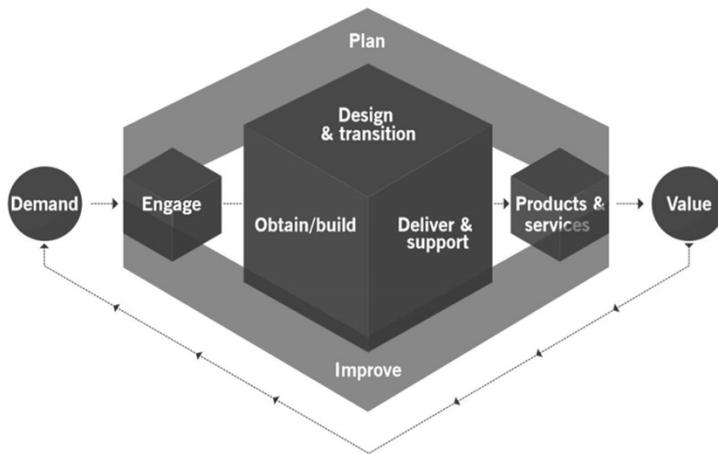


## Practice

Set of organizational resources designed to complete an objective

## ITIL® Practices and the SVC

### The Service Value Chain (SVC)



34 ITIL® 4 Management Practices		
General Management Practices	Service Management Practices	Technical Management Practices
Architecture management	<b>Availability management</b>	<b>Deployment management</b>
Continual improvement	Business analysis	Infrastructure and platform management
<b>Information security management</b>	<b>Capacity and performance management</b>	Software development and management
Knowledge management	Change control	
Measurement and reporting	Incident management	
Organizational change management	IT asset management	
Portfolio management	Monitoring and event management	
Project management	Problem management	
<b>Relationship management</b>	<b>Release management</b>	
Risk management	Service catalog management	
Service financial management	<b>Service configuration management</b>	
Strategy management	Service continuity management	
<b>Supplier management</b>	Service design	
Workforce and talent management	<b>Service desk</b>	
	<b>Service level management</b>	
	<b>Service request management</b>	
	Service validation and testing	

ITIL® 4 Practices		
General Management Practices	Service Management Practices	Technical Management Practices
1. Architecture management 2. Continual improvement 3. Information security management 4. Knowledge management 5. Measurement and reporting 6. Organizational change management 7. Portfolio management 8. Project management 9. Relationship management 10. Risk management 11. Service financial management 12. Strategy management 13. Supplier management 14. Workforce and talent management	1. Availability management 2. Business analysis 3. Capacity and performance management 4. Change control 5. Incident management 6. IT asset management 7. Monitoring and event management 8. Problem management 9. Release management 10. Service catalogue management 11. Service configuration management 12. Service continuity management 13. Service design 14. Service desk 15. Service level management 16. Service request management 17. Service validation and testing	1. Deployment management 2. Infrastructure and platform management 3. Software development and management

## ITIL® Management Practice

*A set of organizational resources designed for performing work or accomplishing an objective.*



### Things to remember



- There are many ways the practices can be combined
- 34 total: 14 general, 17 service, and 3 technical
- The practices will produce both inputs and outputs in the SVC activities
- The exam *will not* expect you to align the practices to the SVC activities





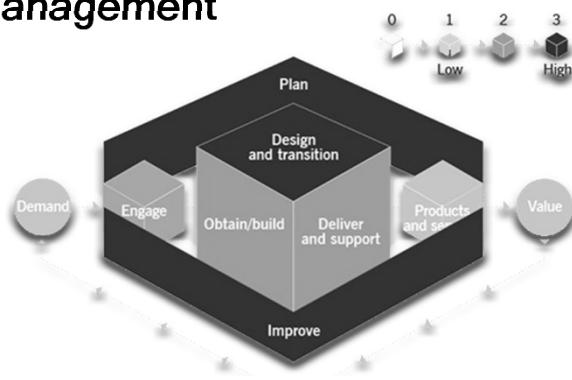
## Practices heat maps



## 1. General management practices



### 1.1 Architecture management



The purpose of the **architecture management** practice is to provide an understanding of all the different elements that make up an organization and how those elements interrelate, enabling the organization to effectively achieve its current and future objectives. It provides the principles, standards, and tools that enable an organization to manage complex change in a structured and Agile way.

## 1.1 Architecture management (Cont.)

### Architecture types

#### Business architecture

A 'roadmap' describes the transformation from current to future state to achieve the organization's strategy.

#### Service architecture

Gives the organization a view of all the services it provides, (how the service components fit together) and the dynamics (activities, flow of resources, and interactions) of each service.

#### Information systems architecture

Information is a valuable asset for the organization, with actual and measurable value. Information is the basis for decision-making, so it must always be complete, accurate, and accessible to those who are authorized to access it.

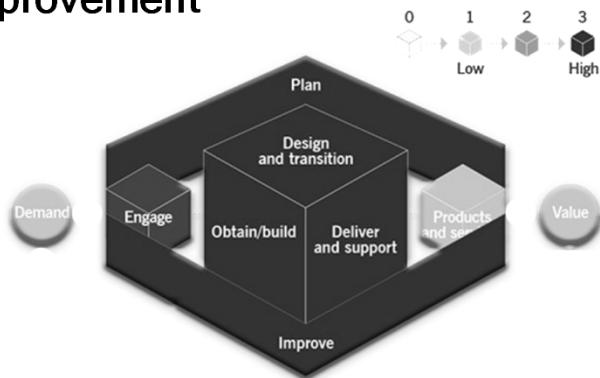
#### Technology architecture

Defines the software and hardware infrastructure needed to support the portfolio of products and services.

#### Environmental architecture

Describes the external factors impacting the organization and the drivers for change, as well as all aspects, types, and levels of environmental control and their management.

## 1.2 Continual improvement



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.

## Continual Improvement

Aligning an organization's practices and services with changing business needs through ongoing identification and improvement of all elements of effective management of products and services



### 1.2 Continual improvement (Cont.)

Key activities that are part of continual improvement practices include:

- encouraging continual improvement across the organization
- securing time and budget for continual improvement
- identifying and logging improvement opportunities
- assessing and prioritizing improvement opportunities
- making business cases for improvement action
- planning and implementing improvements
- measuring and evaluating improvement results
- coordinating improvement activities across the organization.

## Value:

The four terms that illustrate the value that CSI provides to a business are:

1. **Improvements** are results that show a tangible positive difference when a process has been applied. CSI can produce such improvements.
2. The implementation of improvements yields a measurable result known as **benefits**.
3. **ROI** is defined as the difference between the benefit and the cost of the benefit, divided by the cost of the benefit. It is expressed as a percentage. In other words, the ROI will determine how much was saved in proportion to what was spent.
4. **VOI** is defined as additional value that is derived from benefits gained. This additional value can include non-monetary gains, or gains that are realized over a longer time period.

For example, say an IT organization introduces a Change Management process that increases its adaptability. This will enable it to respond quickly to market changes and to recognize opportunities.

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## Measuring Services for CSI

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Continual Service Improvement (CSI) is a phase in the IT Service Lifecycle that is responsible for managing improvements to IT services and Service Management processes.

The aim of CSI is to ensure that IT services are always aligned with changing business needs. Processes within CSI ensure this outcome by continually identifying and implementing improvements to services that support business processes.

It's important to establish baselines when focusing on service improvement. A baseline is a marker or starting point that is used for comparison at a later stage.



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#### Reasons for monitoring and measuring a service:



##### validating decisions

Monitoring and measuring services **validates** decisions that have been made previously.

##### directing activities

Monitoring and measuring services sets the **direction** for activities so that agreed targets can be met. Directing activities is the central reason for monitoring and measuring services and Service Management processes.

##### justifying actions

Monitoring and measuring services provides **justification** for a course of action, through the documentation of factual evidence.

##### intervening when necessary

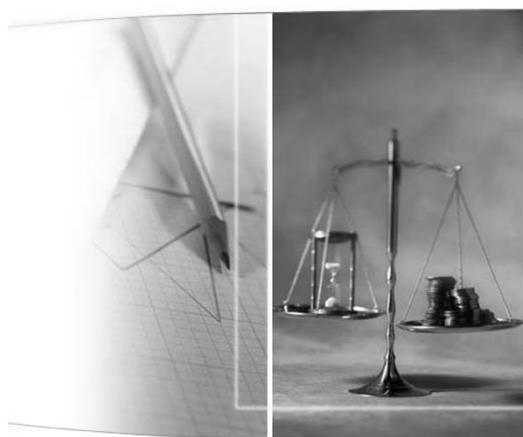
Monitoring and measuring services identifies points for **intervention**, where services or Service Management procedures are not performing adequately. Subsequent changes and corrective actions are also determined through monitoring and measuring.

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## Metrics to support CSI activities:

In the CSI phase, measurements are defined as metrics. A metric is a scale of measurement relating to a defined standard.

To quantify an event by measuring it, you need a relevant metric for use as a benchmark against which the event can be measured.



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## Types of metrics:

Three types of metrics must be collected to support CSI activities:

1. **Technology metrics** are usually component or application-based metrics. For example, they may measure the performance and availability of components or applications. They help to evaluate the technological components of a service.
2. **Process metrics** help to evaluate the overall functioning of processes. These metrics are captured in the form of Critical Success Factors (CSFs), Key Performance Indicators (KPIs), and activity metrics for Service Management processes. KPIs measure quality, performance, value, and compliance with service processes.
3. **Service metrics** help to evaluate services. For example, they may measure schedule efficiency, effort, cost, defects, productivity, and customer satisfaction.



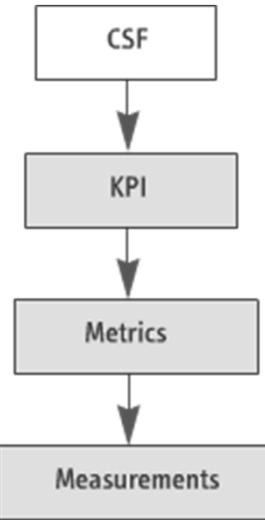
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## CSFs and KPIs:

Each CSF should be associated with a KPI. KPIs may be associated with such factors as quantity and quality. So a KPI may relate to a specified percentage that must be met, or a defined level of service quality.

During the initial stages of a CSI program, it is recommended that only two to three KPIs for each CSF are defined, monitored, and reported. As a service and Service Management processes mature, further KPIs can be added. KPIs can also change over time.

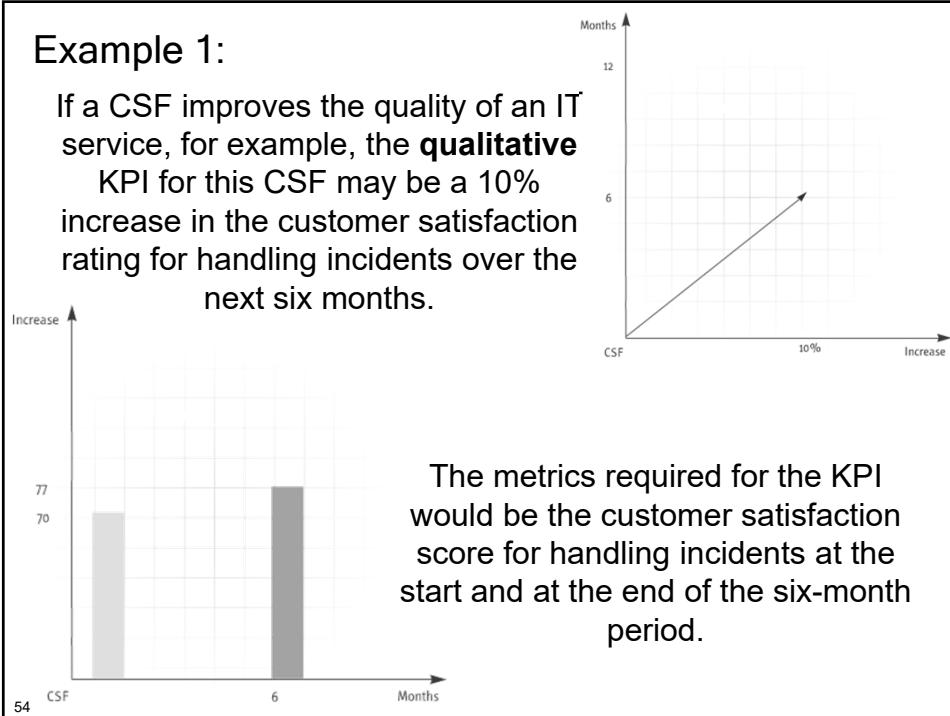
Each KPI has associated metrics, which in turn are associated with measurements.



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## Example 1:

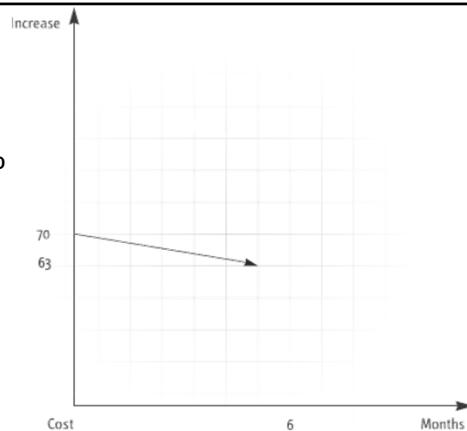
If a CSF improves the quality of an IT service, for example, the **qualitative** KPI for this CSF may be a 10% increase in the customer satisfaction rating for handling incidents over the next six months.



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### Example 2:

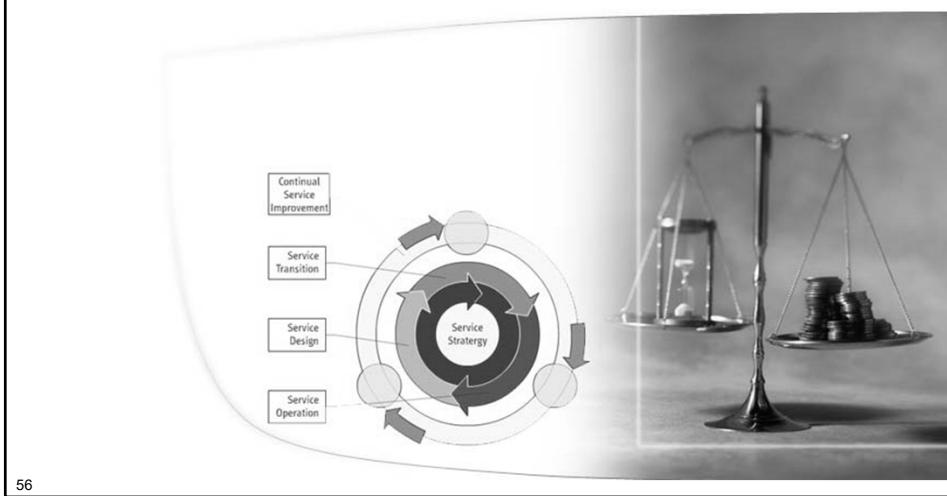
If a CSF is reducing IT costs, a **quantitative KPI** may be a 10% reduction in the costs of handling printer incidents.



The metrics required would be the original and final costs of handling printer incidents and the cost of the improvement effort.

Time and resources spent on handling printer incidents would be the measurements. For instance, measurements would include the time and salaries of first-level operatives, as well as the cost of relevant service calls to <sup>55</sup>third-party vendors.

**Each phase of the Service Lifecycle has specific goals** it must achieve. It is important to measure the performance of each phase to ensure that its goals are being met. You measure performance by applying a set of metrics to each goal.



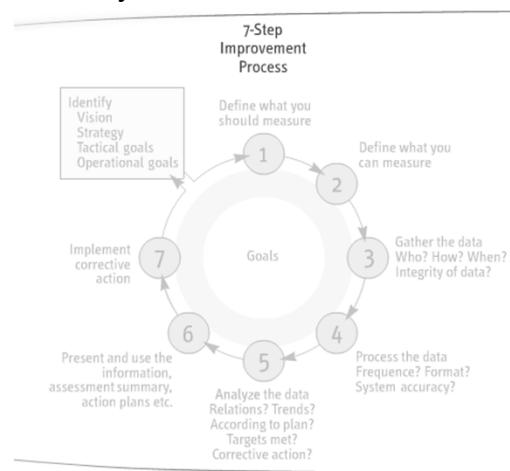
# The 7-Step Improvement Process

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To measure and monitor services and Service Management processes effectively, Continual Service Improvement (CSI) uses the 7-step improvement process.

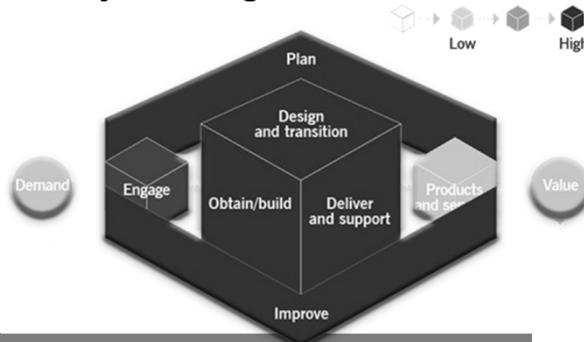
This process spans the whole organization, as well as the entire Service Lifecycle.

1. define what you should measure.
2. define what you can measure.
3. gather the data.
4. process the data.
5. analyze the data.
6. present and use the information.
7. implement corrective action.



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## \*1.3 Information security management



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 nonrepudiation (ensuring that someone can't deny that they took an action).

## 1.3 Information security management (Cont.)

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.

## Information Security Management



### Purpose:

- *To protect the information needed by the organization to conduct its business*

### Big idea:

- Understanding confidentiality, integrity, and availability
- Understanding authentication and non-repudiation

## Information Security Management:

Information Security Management (ISM) provides the focus for all aspects of IT security. It involves management activity within the corporate governance framework. It provides strategic direction for security activities and ensures that all objectives are achieved.

## **Objectives:**

- **Availability**

ISM needs to ensure that agreed levels of service **availability** are supported. To do this, it must ensure that usable information is provided when required, and that the providing systems can resist relevant attacks and recover from or prevent failures.

- **Confidentiality**

ISM aims to protect the **confidentiality** of data and systems. It needs to ensure that information is disclosed only to those people who have a right to see and use it.

- **Integrity**

It must ensure that information is complete, accurate, and protected from unauthorized modification.

- **authenticity and nonrepudiation**

ISM aims to ensure the **authenticity and nonrepudiation** of all business transactions and information trades between enterprises or with partners, to ensure that the organization is deemed trustworthy.

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Effective ISM entails **managing security risks, monitoring processes to ensure compliance, and providing feedback on effectiveness**.

It should also include **developing a communications strategy and providing any necessary training on security policies and measures**.

An effective ISM process and framework should include the following components:

- an information security policy
- an Information Security Management System (ISMS)
- a comprehensive security strategy that aligns to business objectives, strategies, and plans
- an effective security organizational structure
- security controls to support the information security policy
- monitoring processes aimed at ensuring compliance and providing feedback on efficacy
- a communications strategy
- a security training plan



## Information security policy:

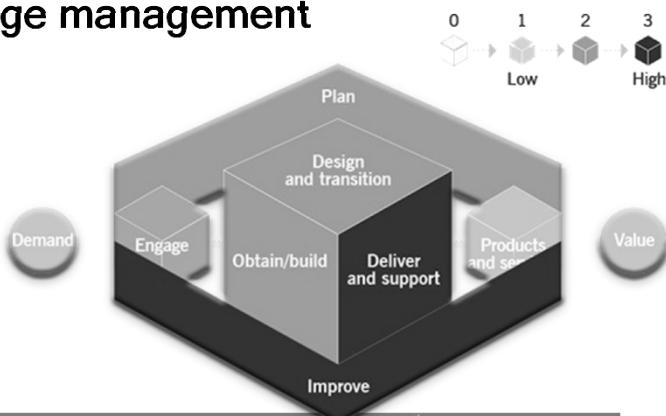
Some examples of what the information security policy may include are:

- an overall policy for securing information
- a policy outlining the use and misuse of IT assets
- an access control policy
- a password control policy
- an e-mail policy



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## 1.4 Knowledge management

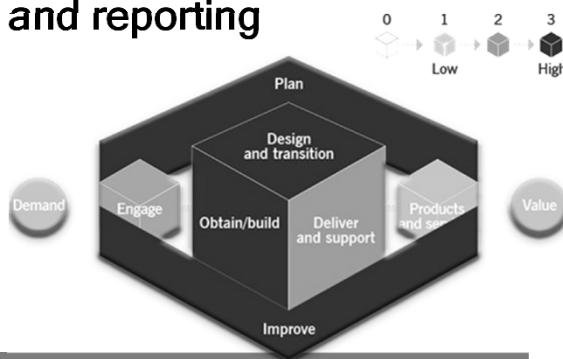


The purpose of the **knowledge management** practice is to maintain and improve the effective, efficient, and convenient use of information and knowledge across the organization.

## 1.4 Knowledge management (Cont.)

- It is important to understand that ‘knowledge’ is not simply information.
- Knowledge is the use of information in a particular context. This needs to be understood with both the user of the knowledge and the relevant situation in mind.
- For example, information presented in the form of a 300-page manual is not useful for a service desk analyst who needs to find a fast solution.

## 1.5 Measurement and reporting



The purpose of the **measurement and reporting** practice is to support good decision-making and continual improvement by decreasing the levels of uncertainty.

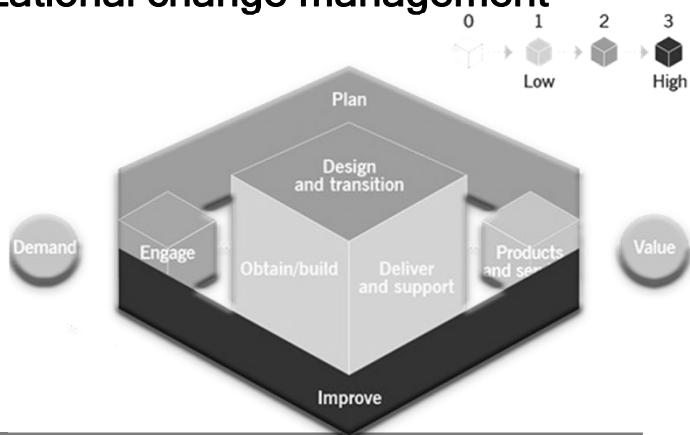
This is achieved through the collection of relevant data on various managed objects and the valid assessment of this data in an appropriate context. Managed objects include, but are not limited to, products and services, practices and value chain activities, teams and individuals, suppliers and partners, and the organization as a whole.

## 1.5 Measurement and reporting (Cont.)

Definitions:

- **Critical success factor (CSF)** A necessary precondition for the achievement of intended results.
- **Key performance indicator (KPI)** An important metric used to evaluate the success in meeting an objective.

## 1.6 Organizational change management



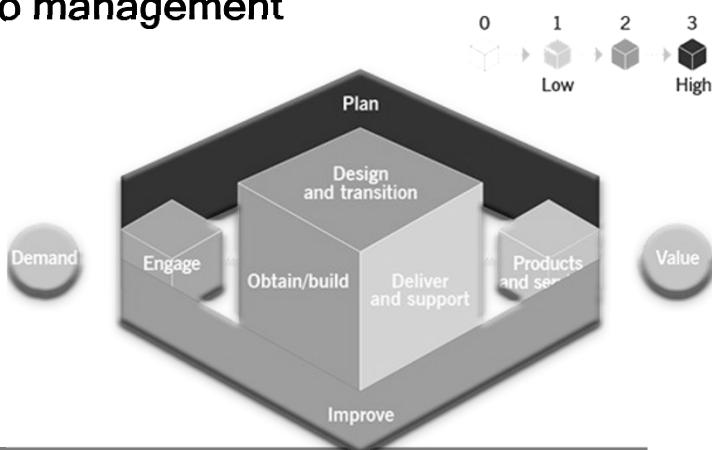
The purpose of the **organizational change management** practice is to ensure that changes in an organization are smoothly and successfully implemented, and that lasting benefits are achieved by managing the human aspects of the changes.

## 1.6 Organizational change management (Cont.)

Organizational change management must ensure that the following are established and maintained throughout the change:

- **Clear and relevant objectives** The change must be seen to be of real value.
- **Strong and committed leadership** Leaders should visibly support and consistently communicate their commitment to the change.
- **Willing and prepared participants** This willingness will come from the participants being convinced of the importance of the change.
- **Sustained improvement** Many changes fail because, after some time has passed, people revert to old ways of working.

## 1.7 Portfolio management



The purpose of the **portfolio management** practice is to ensure that the organization has the right mix of programs, projects, products, and services to execute the organization's strategy within its funding and resource constraints.

## 1.7 Portfolio management (Cont.)

Portfolio management encompasses a number of different portfolios, including the following:

- **Product/service portfolio**
- **Project portfolio**
- **Customer portfolio**

### Types of services:

Types of services that organizations provide include:

- **Core services:**

Provide the basic outcomes desired by the customer and so are the basis of the value proposition for the customer.

e.g.: For a bank could be providing financial capital to business enterprises.



- **Supporting services:**

Enable or enhance a core service

e.g.: Bank could offer supporting services such as dedicated personnel for assisting customers in assessing their capital needs



- **Enabling services:**

Supporting services that enable customers to use core services effectively.

e.g.: A bank may offer the enabling services of a help desk, payment, registration, and directory services to its customers.



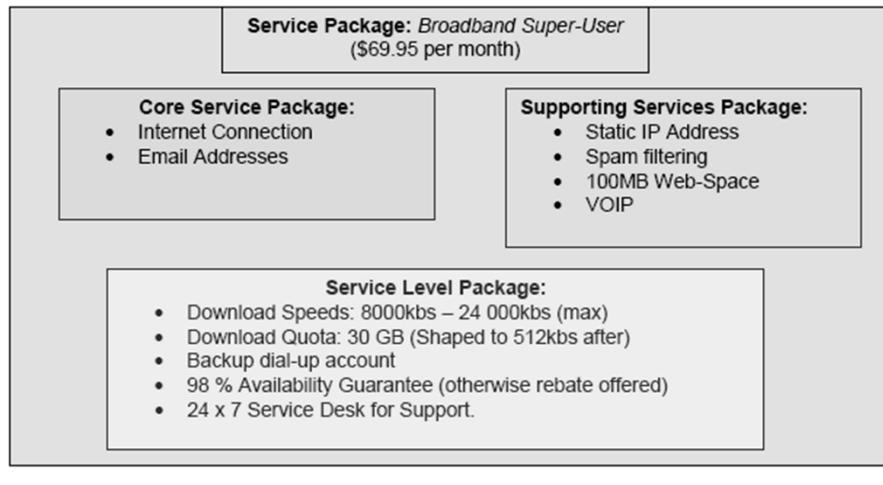
- **Enhancing services:**

Supporting services that differentiate core services from the services provided by other organizations.

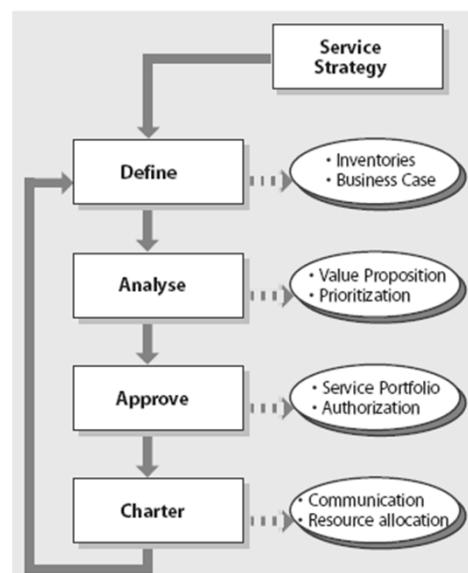
e.g.: as part of its business loan service, a bank could provide customers that own small businesses with a preapproved banking card.



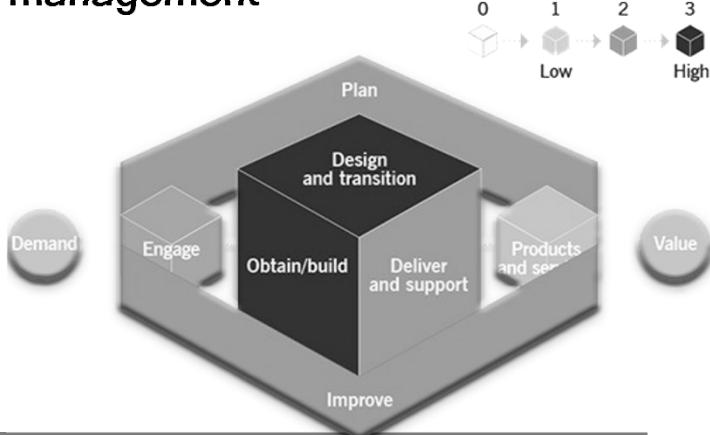
## Example for Service package and service level package:



## Service Portfolio Management process:



## 1.8 Project management



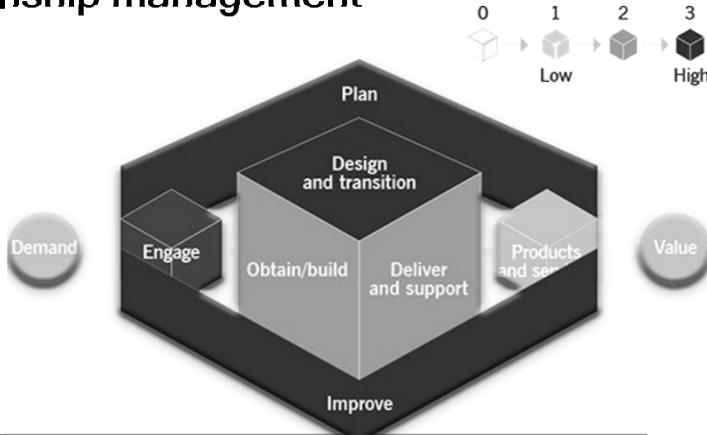
The purpose of the **project management** practice is to ensure that all projects in the organization are successfully delivered. This is achieved by planning, delegating, monitoring, and maintaining control of all aspects of a project, and keeping the motivation of the people involved.

## 1.8 Project management (Cont.)

There are different approaches to the way in which projects are delivered, with the waterfall and Agile methods being the most common:

- **The waterfall method** works well in environments where the requirements are known upfront (and unlikely to significantly change), and where definition of the work is more important than the speed of delivery.
- **The Agile method** works best where requirements are uncertain and likely to evolve rapidly over time (for example, as business needs and priorities change), and where speed of delivery is often prioritized over the definition of precise requirements.

## \*1.9 Relationship management



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.

## 1.9 Relationship management (Cont.)

The relationship management practice ensures that:

- stakeholders' needs and drivers are understood, and products and services are prioritized appropriately
- stakeholders' satisfaction is high and a constructive relationship between the organization and stakeholders is established and maintained
- customers' priorities for new or changed products and services, in alignment with desired business outcomes, are effectively established and articulated
- any stakeholders' complaints and escalations are handled well through a sympathetic (yet formal) process
- products and services facilitate value creation for the service consumers as well as for the organization
- the organization facilitates value creation for all stakeholders, in line with its strategy and priorities
- conflicting stakeholder requirements are mediated appropriately.

## Relationship Management



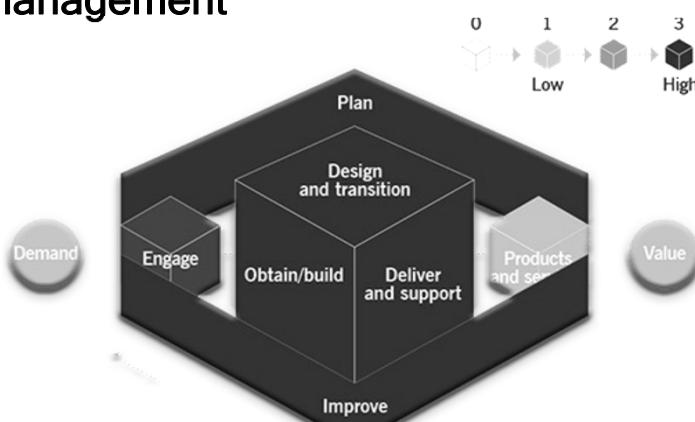
### Purpose:

- To establish and nurture the links between the organization and its stakeholders at strategic and tactical levels

### Big idea:

- Customers' priorities for new or changed products and services, in alignment with desired business outcomes are effectively established and articulated

## 1.10 Risk management



The purpose of the **risk management** practice is to ensure that the organization understands and effectively handles risks. Managing risk is essential to ensuring the ongoing sustainability of an organization and creating value for its customers. Risk management is an integral part of all organizational activities and therefore central to the organization's SVS.

## 1.10 Risk management (Cont.)

For risk management to be effective, risks need to be:

- **Identified** Uncertainties that would affect the achievement of objectives within the context of a particular organizational activity. These uncertainties must be considered and then described to ensure that there is common understanding.
- **Assessed** The probability, impact, and proximity of individual risks must be estimated so they can be prioritized and the overall level of risk (risk exposure) associated with the organizational activity understood.
- **Treated** Appropriate responses to risks must be planned, assigning owners and actionees, and then implemented, monitored, and controlled.

### Risk management:

Risk is defined as uncertainty of outcome. It can take the form of positive opportunities or negative threats.

Risk Management involves the identification and control of exposure to risks that may have an impact on the achievement of an organization's busin



Effective management of risk helps improve performance by

- increasing certainty and lessening surprises
- improving service delivery and so protecting against client dissatisfaction and loss of market share
- resulting in more effective management of change in response to customer or market needs, and political or cultural changes
- resulting in more efficient use of resources
- improving management at all levels due to better decision making
- reducing waste and fraud, and increasing value for money
- encouraging innovation through new technologies so that opportunities can be exploited, and
- managing contingent and maintenance activities for dealing with any threats once they actually occur



## Risk management with suppliers:

When working with suppliers, Risk Management focuses on threats to:

- customer satisfaction
- brand image
- market share
- share price
- profitability, and
- regulatory impacts or penalties that are industry dependent

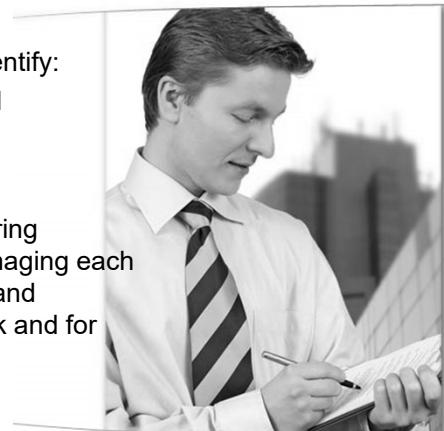


## Risk assessment:

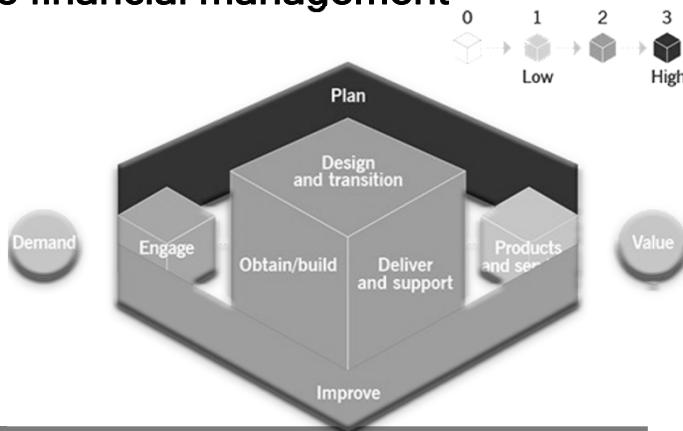
A risk assessment normally consider threats that could affect the confidentiality, integrity, or availability of one or more assets.

A risk assessment should generally identify:

- relevant risks, including threats and opportunities
- the likely impact of each threat
- the total impact of the risks
- the probability of each threat occurring
- possible actions or controls for managing each threat based on its impact or cost, and
- the person responsible for each risk and for implementing the chosen response



## 1.11 Service financial management



The purpose of the **service financial management** practice is to support the organization's strategies and plans for service management by ensuring that the organization's financial resources and investments are being used effectively.

## 1.11 Service financial management (Cont.)

Service financial management is responsible for managing the budgeting, costing, accounting, and charging for the activities of an organization, acting as both service provider and service consumer

### Concepts:

Some of the **concepts** associated with Financial Management include:

#### **Service valuation**

Financial Management quantifies a fiscal value for a service or service component.

#### **Demand modeling**

Financial Management quantifies the fluctuations of funding that result from shifts in levels of demand.

#### **Accounting**

Within Financial Management is different to traditional accounting because further categories and characteristics are defined. These help to identify and keep track of service-oriented expenses or capital items.

#### **Variable Cost Dynamics (VCD)**

Analyzes the many variables that affect service cost, how these elements may be affected by variability, and the related changes in value that result.



Financial Management include:

### Budgeting

Incremental Vs. ZBB

Determine the budgeting period

### Accounting

Defining cost elements.

Identifying and qualifying costs; expenditures.

### Charging

Tool to allow for careful usage of IT resources.

Should be compatible with organizational financial policies.

### Costs

## Types of Costs:

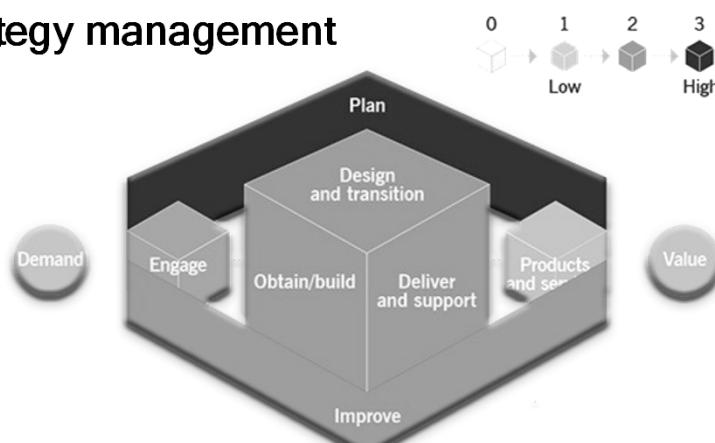
**Exercise :** Can you name examples from your project work of the following most commonly used types of cost?

Type	Description	Examples
<b>Fixed costs</b>	Project costs that remain constant regardless of phase or output.	
<b>Variable costs</b>	Project costs that vary in relation to the output.	
<b>Direct costs</b>	Costs that are directly attributable to the project being estimated.	
<b>Indirect costs</b>	Costs that are attributable to more than one project. Also known as overhead.	
<b>Cost reserves</b>	Amount of money needed above the estimate to reduce risk of overruns of project objectives to a level acceptable to the organization.	

## General Accounting Terms

- Opportunity Cost.
- Depreciation.
- TCO
- ROI

## 1.12 Strategy management



The purpose of the **strategy management** practice is to formulate the goals of the organization and adopt the courses of action and allocation of resources necessary for achieving those goals. Strategy management establishes the organization's direction, focuses effort, defines or clarifies the organization's priorities, and provides consistency or guidance in response to the environment.

## **1.12 Strategy management (Cont.)**

- Strategy management is often seen as the responsibility of the senior management and governing body of an organization.
- It enables them to set the objectives of the organization, to specify how the organization will meet those objectives, and to prioritize the investments that are required to meet them.
- The strategy provides the overall direction and alignment of the organization, serving as both a screen that innovative ideas must pass and a basis for evaluating the success of the SVS.
- It encourages employees to be creative, while ensuring that they are in harmony with the organization and pursue only valuable opportunities.

**Create Value with Assets and Services**

## Creating Value:

For any organization, deciding on a strategy to serve its customers is of utmost importance.

A strategic perspective starts with understanding **competitors** and their products. This enables the organization to review its position and provide **differentiated value** to its customers.

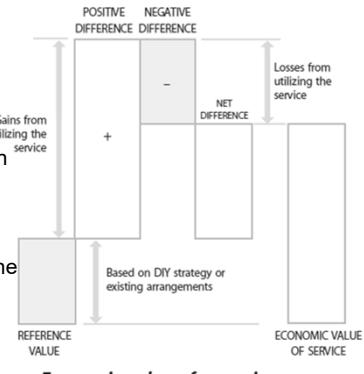
Adding value to a product involves providing **differentiated** value to the customer and ensures that an organization's product does not become subject to competitive forces

## What determine value?

In some instances, value can be quantified in financial terms.

In other instances, value is determined by a number of nonfinancial factors, such as:

- customer perceptions:
  - Influenced by attributes of a service, previous experience and the capabilities and capacity of competitors.
- the reference value of a service:
  - Influenced by the customer's expectations.
  - Could be the baseline that customers maintain on the cost of in-house functions or services.
- the economic value of a service:
  - Is the sum of this reference value and the net difference in value the customer associates with the offered service.



*Economic value of a service*

## From Effective utilization of resources to effective realization of outcomes:

The **modern change of focus** to business outcomes represents a shift of emphasis from the efficient utilization of resources to the effective realization of outcomes.

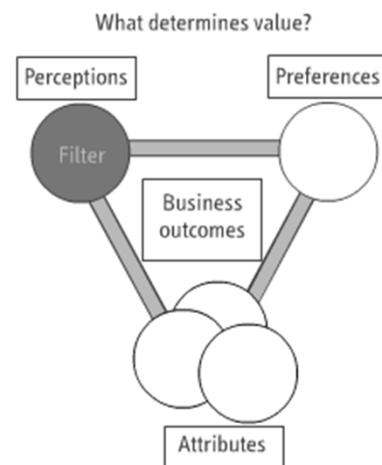
Because customers pay for the **fulfillment** of their needs, it is imperative that service providers know their customers' needs and meet those needs. It is also important for service providers to recognize that what customers value is often different from what an organization believes it provides.



## Framing the value of services:

In order to focus our efforts in a way that uncover key business outcomes that add value for the customer three guidelines need to be followed:

1. look from the customer's perspective
2. recognize that value can be provided at different levels
3. understand the positive effect that customers perceive a service can have on their business outcomes



## 1- look from the customer's perspective:

Being able to identify which outcomes matter and how they are ranked in terms of customer perception requires a marketing mindset. This means that instead of focusing inward on production processes, service providers need to **look from the customer's perspective** to understand a customer's perception.

To understand the customer's perspective, an organization needs to

- What is our business?
- Who are our customers?
- What is it that customers value?
- Who depends on our services?
- How do customers use our services?
- Why are our services valuable to customers?



## 2- Recognize that value can be provided at different levels:

It is important for an organization to **recognize that value can be provided at different levels**.

Of these levels, it's the net difference that matters most.

A service provider can differentiate itself from an **equipment vendor** through added value, **even though it uses** the vendor's equipment as assets

Differentiation can arise from the provision of communication services instead of routers and switchboards.

The focus shifts from attributes to the fulfilment of outcomes.

With a **marketing mindset** it is possible to understand the **components of value** from the customer's perspective.

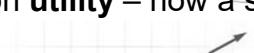


3- Understand the positive effect that customers perceive a service can have on their business outcomes:

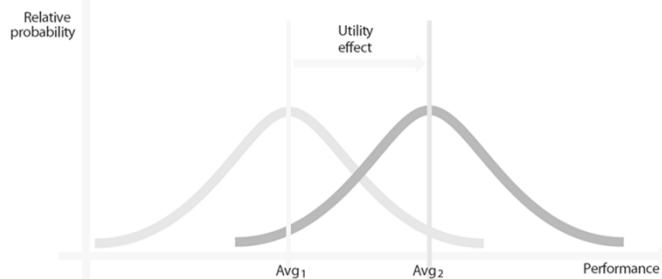
To a service provider's customers, the outcomes that matter depend on the **positive effect they perceive a service can have on their business outcome** and activities.

The extent of this value depends on customers' perception of the fitness for purpose and fitness for use of a service or product.

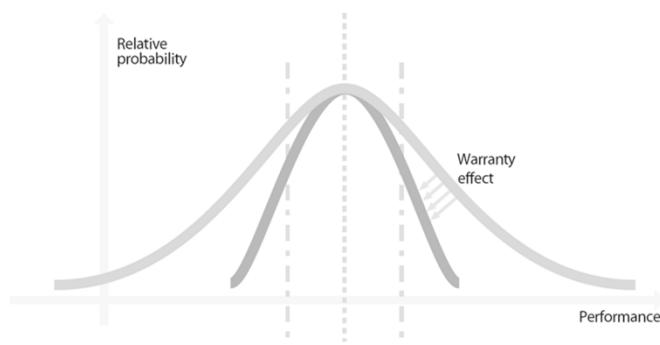
The customer's perception of fitness for purpose depends on **utility** – how a service or product activity



A service's fitness if available in sufficient capacity when it is



#### *Utility increases the performance average*



*Warranty reduces the performance variation*

## Using assets to create and add value:

One of the ways service providers add value to goods and services is through the use of assets. There are two main types of assets – **resources** and **capabilities**.

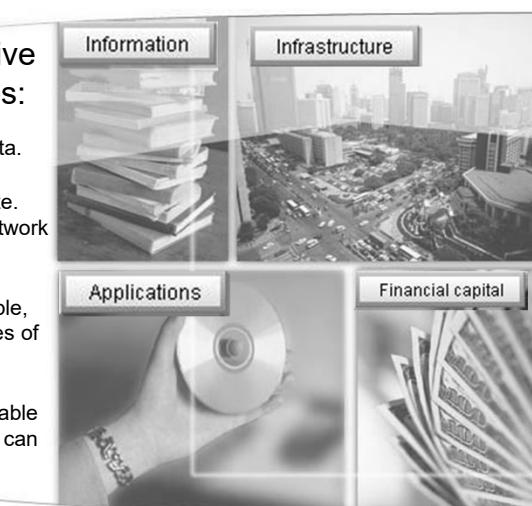


### Resources:

**Resources** take the form of direct inputs into the production or service delivery. It is often easier to gain resources than capabilities.

There are **four** exclusive examples of resources:

1. Information:
  - collections and patterns of data.
2. Infrastructure:
  - enable other assets to operate.
  - computers, storage systems, network devices....
3. Applications:
  - used to automate, codify, enable, enhance, or maintain other types of assets.
4. Financial capital:
  - cash, cash equivalents, marketable securities, and receivables that can be converted to cash.



## Capabilities:

**Capabilities** are the components that make up an organization's ability to use and transform resources in a way that adds value to services or products.

Capabilities are often experience-driven, knowledge-intensive, and information-based. They lie within the organization's people, processes, and technologies.

1. Management
2. Organization
3. Process
4. Knowledge



Capabilities are **harder** to acquire than resources and are typically developed over time.

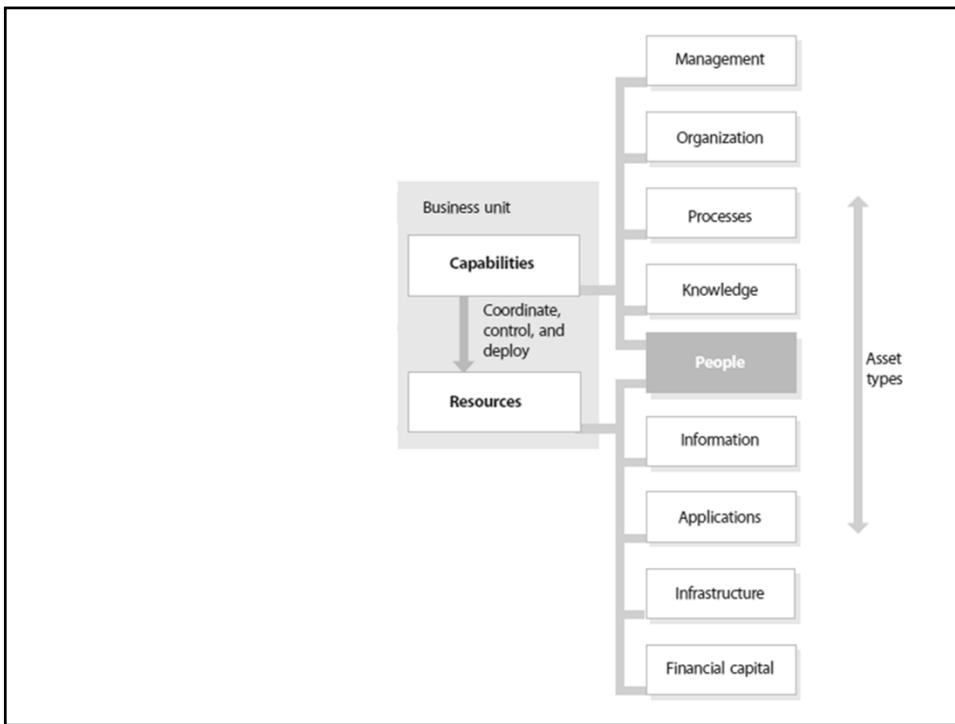
## People:

People within an organization are **both** resource and capability assets.

They bring the capacity for creativity, analysis, perception, learning, judgment, leadership, communication, coordination, empathy, and trust to an organization.

Because people learn and adapt, they are versatile. People are the only asset type that can use knowledge, experience, and skills to create, combine, and deploy all other asset types.





## Service Strategy process

## The goal:

The goal of a Service Strategy can be summed up very simply – ***superior performance versus competing alternatives.***

The basic premise of a Service Strategy is that service providers must **meet the objectives** defined in terms of their customers' business outcomes while subject to a system of constraints.

In a world of constrained resources and capabilities, service providers must also hold their positions against **competing alternatives**. By understanding the **trade-offs** involved in strategic choices, such as which services to offer or markets to serve, a service provider can better serve customers and outperform its competitors.



## Activities in the Service Strategy process:

There are four main activities in the Service Strategy process:

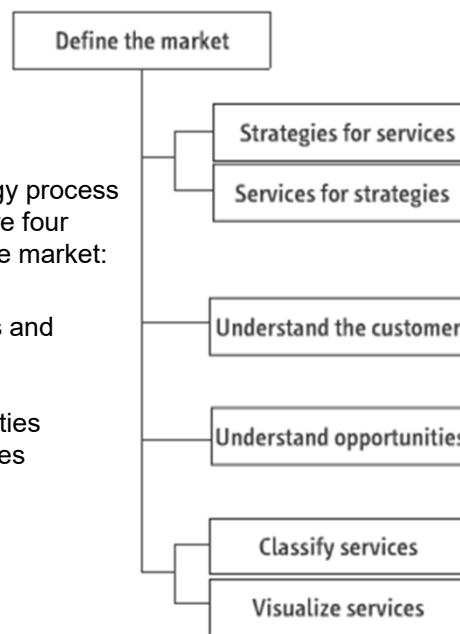
1. Define the market
  - understanding the customer, understanding opportunities, and classifying and visualizing services
2. Develop offerings
  - defining services based on their outcomes for customers, and building and using a Service Portfolio.
3. Develop strategic assets:
  - defining the value network for customers, increasing service potential.
4. Prepare for execution:
  - involves taking steps to ensure that the strategy will have the best possible results before it's actually implemented.



## 1- Define the market:

The first activity in the Service Strategy process is to **define the market**. There are four guidelines to follow when defining the market:

- develop services for strategies and strategies for services
  - understand the customer
  - understand service opportunities
  - classify and visualize services



## 2- Develop offerings:

The second step in the Service Strategy is to develop offerings.

During this phase, an IT organization decides which services to offer customers.

There are three techniques organizations use when developing offerings:

1. identifying the market space
2. defining the value of developing services based on their outcomes for customers
3. using a Service Portfolio

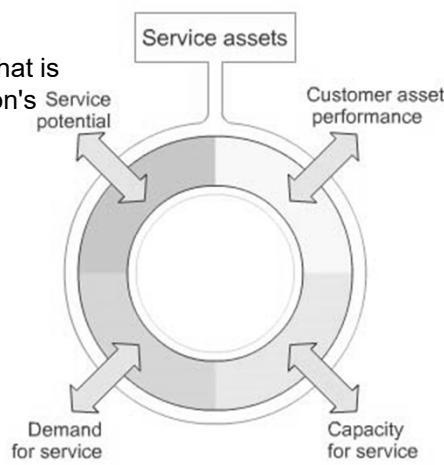
Categories of customer assets (value context)			
	Process	Knowledge	Financial assets
Process			Payments are processed
Monitor			Transactions are monitored
Secure	Business is securely conducted	Documents are secure	Payments are secure

Market space defined in terms of outcomes desired by customers

### 3- Develop strategic assets:

Developing strategic assets is the third activity in the Service Strategy process.

A strategic asset is an asset that is used to reach an organization's Service potential



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### 4- Prepare for execution:

A ten-step process can help your organization prepare for executing a Service Strategy. This process doesn't guarantee success – it simply provides guidelines, which you will need to adapt to your organization.

1. perform a strategic assessment.
2. set objectives.
3. align service assets with customer outcomes.
4. define **critical success factors** (CSFs).
5. conduct a competitive analysis.
  
6. prioritize investments.
7. explore business potential.
8. align strategies with customer needs.
9. expand into adjacent market spaces.
10. provide distinctive value in market spaces.

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6

There are three basic categories of service providers:

Type I providers

The market spaces of **Type I providers** are internal to the organizational unit within which they are embedded. For example, an internal IT unit that provides administration services to an Accounting Department in a financial institution is a Type I service provider.

Type II providers

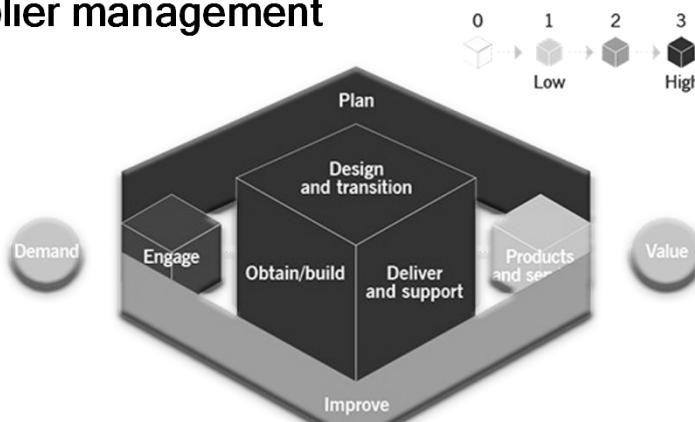
The market spaces of **Type II providers** are internal to an enterprise but distributed across constituent business units and the corporate functions. For example, an IT head office that provides administrative services to several branches and departments of a supermarket chain is a Type II service provider.

Type III providers

The market spaces of **Type III providers** are typically distributed across more than one enterprise customer. For example, an IT organization that contracts services to several different businesses is a Type III service provider.

11  
7

## \*1.13 Supplier management



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

## 1.13 Supplier management (Cont.)

**Activities that are central to the practice include:**

- Creating a single point of visibility and control to ensure consistency
- Maintaining a supplier strategy, policy, and contract management information
- Negotiating and agreeing contracts and arrangements
- Managing relationships and contracts with internal and external suppliers
- Managing supplier performance

## Supplier Management

### Purpose:

- *To ensure that the organization's suppliers and their performance are managed appropriately to support the provision of seamless, quality products and services*



### Big idea:

- Maintaining a supplier strategy, policy, and contract management information
- Negotiating and agreeing to contracts and arrangements

## Supplier Management:

The Supplier Management process is driven by a supplier strategy and policy provided by the Service Strategy. The consistent and effective implementation of this policy depends on the establishment of a **Supplier and Contract Database (SCD)**, as well as on clearly defined roles and responsibilities.

Supplier strategy

The SCD should record all supplier and contract details,  
<sup>12</sup><sub>1</sub> including the types of

## Supplier and Contract Database (SCD):

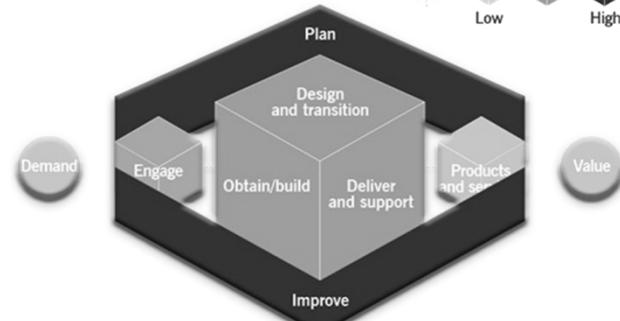
A comprehensive SCD provides information in the areas of:

- supplier categorization
- establishment of new suppliers, their assessment, and the setting up of associated contracts
- contract renewal and termination
- management of supplier and contract performance



## 1.14 Workforce and talent management

0 → 1 → 2 → 3  
Low → High



The purpose of the workforce and talent management practice is to ensure that the organization has the right people with the appropriate skills and knowledge and in the correct roles to support its business objectives. The practice covers a broad set of activities focused on successfully engaging with the organization's employees and people resources, including planning, recruitment, onboarding, learning and development, performance measurement, and succession planning.

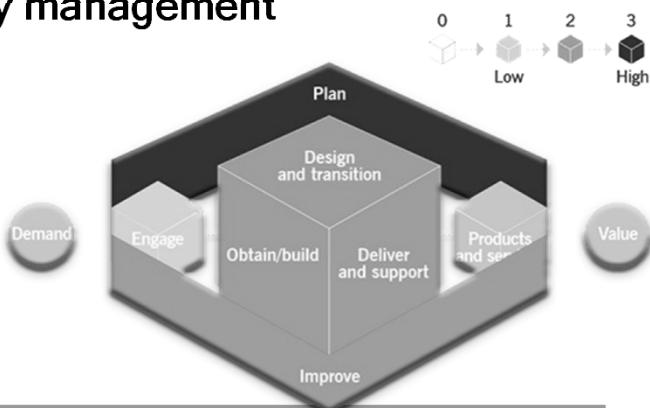
## 1.14 Workforce and talent management (Cont.)



## 2. Service management practices



### \*2.1 Availability management



The purpose of the **availability management** practice is to ensure that services deliver agreed levels of availability to meet the needs of customers and users.

\*

## Availability

*The ability of an IT service or other configuration item to perform its agreed function when required. It relies on reliability (MTBSI/MTBF) and maintainability (MTTRS).*

\*

## Service Level Management

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



\*

## Availability Management



### Purpose:

- *To ensure that services deliver agreed levels of availability to meet the needs of customers and users*

### Big idea:

- Designing infrastructure and applications that can deliver required availability levels, ensuring that services and components are able to collect data required to measure availability

## \*2.1 Availability management (Cont.)

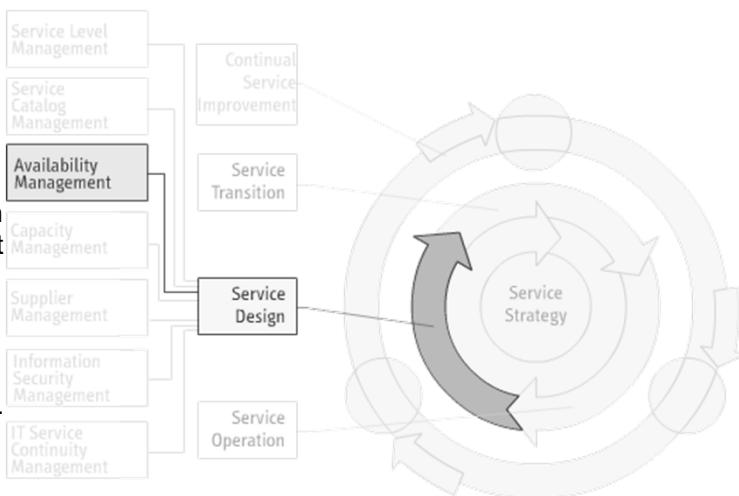
### Availability management activities include:

- negotiating and agreeing achievable targets for availability
- designing infrastructure and applications that can deliver required availability levels
- ensuring that services and components are able to collect the data required to measure availability
- monitoring, analyzing, and reporting on availability
- planning improvements to availability.

## Service Availability Management:

the Availability Management process focuses on ensuring that all operational services meet the agreed availability targets.

It is also responsible for ensuring that new or changed services are designed in such a way as to meet their intended targets, without compromising the performance of other services.



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1

The objectives of the Availability Management process:

- to produce and maintain an appropriate and up-to-date Availability Plan that accurately reflects current and future needs of the organization
- to offer advice and guidance to all other areas of the organization and IT on availability-related issues
- to ensure that availability achievements meet or exceed targets
  - to assist with the diagnosis and resolution of availability-related incidents and problems
- to evaluate the influence of any changes on the Availability Plan and on the performance and availability of all services and resources

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The success of the Availability Management process relies on the measurement, monitoring, analysis, and reporting of three aspects of a service:

1. The **availability** of a service refers to the ability of a service to fulfill its agreed purpose at the correct time. Service availability is usually measured as a percentage.
2. The **reliability** of a service refers to the duration for which it can perform its function without interruption.
3. The **maintainability** of a service refers to how quickly and effectively the service returns to normal after a failure.



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### Availability:

To measure the **availability** of a service, you can subtract the amount of downtime from the Agreed Service Time (AST), divide the result by the AST, and then multiply this number by 100 to obtain a percentage.

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

13  
4

## Example:

Suppose your IT organization provides an antivirus software service. The service has an **AST of 8,760 hours per year**. In the course of a year, the service has had **four hours** of downtime.

### Answer:

To calculate the availability of the service, you subtract 4 from 8,760, divide the result by 8,760, and then multiply by 100. This gives the service an availability of 99.95%.



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## Reliability:

The **reliability** of a service can be measured in either of these units:

- Mean Time Between Service Incidents (MTBSI)
- Mean Time Between Failures (MTBF)



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

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

## Maintainability:

The **maintainability** of a service is usually measured in Mean Time to Restore Service (MTRS). You calculate the MTRS for a service by dividing the total downtime in hours by the number of service breaks.

### Example:

The antivirus service had four hours downtime and four breaks.

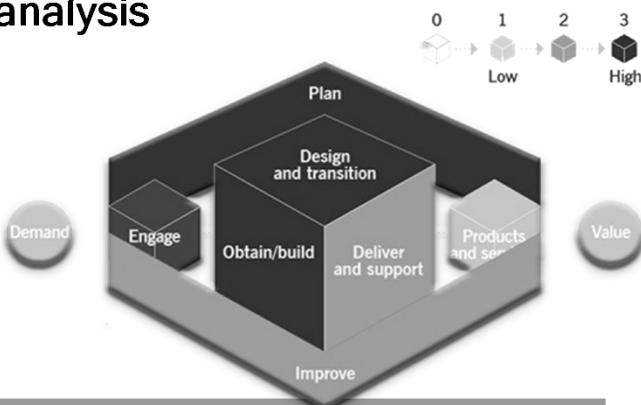
To calculate the

$$\frac{4}{4} = 1$$

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

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## 2.2 Business analysis



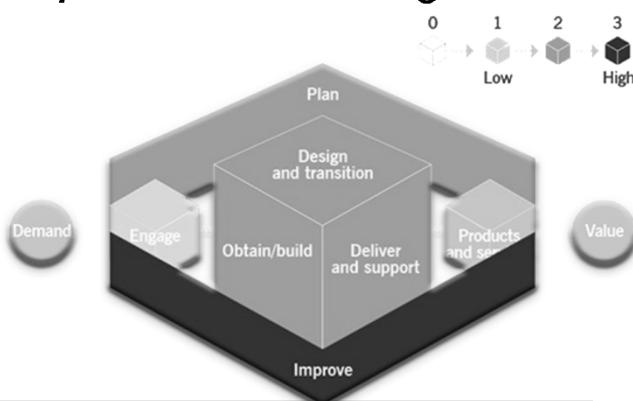
The purpose of the **business analysis** practice is to analyze a business or some element of it, define its associated needs, and recommend solutions to address these needs and/or solve a business problem, which must facilitate value creation for stakeholders. Business analysis enables an organization to communicate its needs in a meaningful way, express the rationale for change, and design and describe solutions that enable value creation in alignment with the organization's objectives.

## 2.2 Business analysis (Cont.)

The key activities associated with business analysis are:

- analyzing business systems, business processes, services, or architectures in the changing internal and external context
- identifying and prioritizing parts of the SVS, and products and services that require improvement, as well as opportunities for innovation
- evaluating and proposing actions that can be taken to create the desired improvement. Actions may include not only IT system changes, but also process changes, alterations to organizational structure, and staff development
- documenting the business requirements for the supporting services to enable the desired improvements
- recommending solutions following analysis of the gathered requirements and validating these with stakeholders.

## \*2.3 Capacity and performance management



The purpose of the **capacity and performance** management practice is to ensure that services achieve agreed and expected performance, satisfying current and future demand in a cost-effective way.

## \*2.3 Capacity and performance management (Cont.)

Service performance is an important aspect of the expectations and requirements of customers and users, and therefore significantly contributes to their satisfaction with the services they use and the value they perceive.

Capacity and performance analysis and planning contributes to service planning and building, as well as to ongoing service delivery, evaluation, and improvement.

An understanding of capacity and performance models and patterns helps to forecast demand and to deal with incidents and defects.

\*

### Capacity and Performance Management



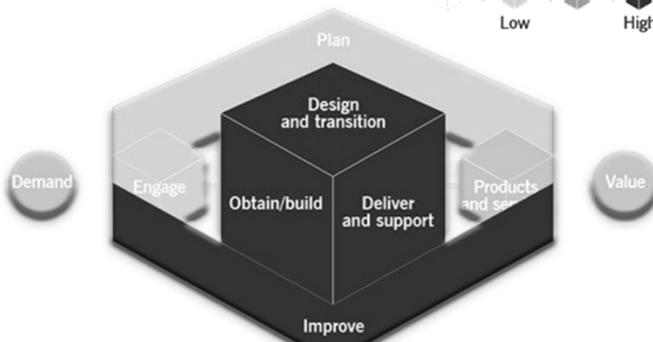
#### Purpose:

- *To ensure that services achieve agreed and expected performance, satisfying current and future demand in a cost-effective way*

#### Big idea:

- Designing infrastructure and applications that can deliver required capacity and performance of products and services

## \*2.4 Change control

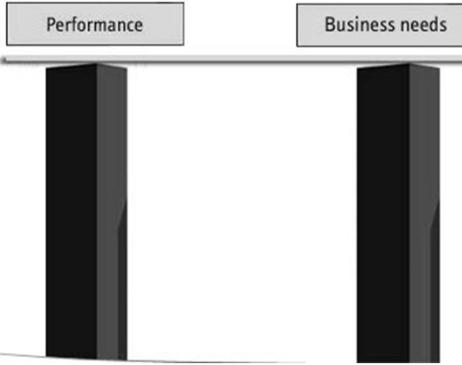


The purpose of the **change control** practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule.

## Capacity Management:

Capacity Management is responsible for ensuring that IT processes are planned and scheduled to provide a consistent level of performance that aligns with current and future business needs.

Capacity Management strives to measure the effect that any change has on the capacity plan, and on the performance and capacity of all services and resources. It also ensures that deliberate measures to improve the performance of services are implemented as long as its costs can be justified.

Performance	Business needs
<p><b>costs against resource needs</b></p> <p>Capacity Management relies on a delicate balance of:</p> <p>Capacity Management needs to balance <b>cost against resource needs</b>. Any purchased processing capacity should be cost-justifiable in terms of business needs, and resources should be put to use most efficiently.</p>	
	<p><b>supply against demand</b></p> <p>Capacity Management needs to ensure a balance between <b>supply and demand</b> for IT capacity. The available supply of IT processing power should</p>

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\*

## Change Control

Ensuring risks are properly assessed, authorizing changes to proceed, and managing a change schedule to maximize the number of successful IT changes



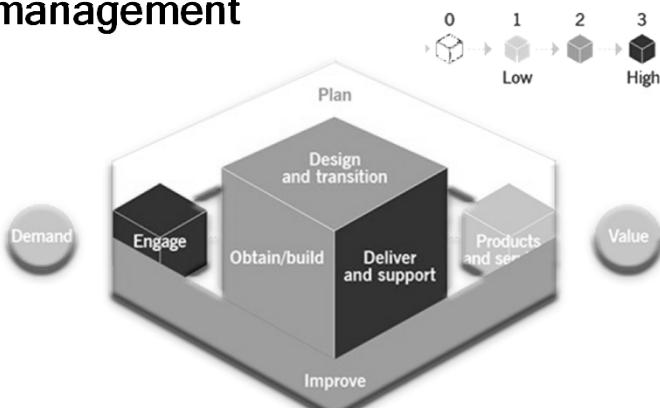
## \*2.4 Change control (Cont.)

- Change control must balance the need to make beneficial changes that will deliver additional value with the need to protect customers and users from the adverse effect of changes.
- 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.

There are three types of changes:

- Standard changes
- Normal changes
- Emergency changes

## \*2.5 Incident management



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

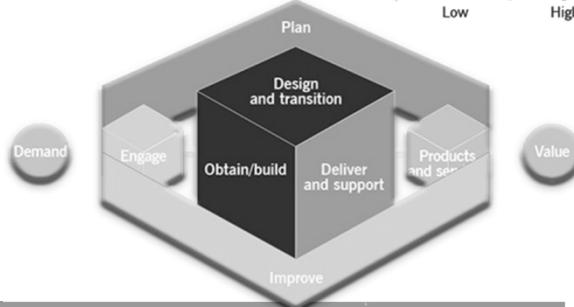
Minimizing the negative impact of incidents by restoring normal service operation as quickly as possible



### \***2.5 Incident management (Cont.)**

- **Incident management can have an enormous impact on customer and user satisfaction, and on how customers and users perceive the service provider.**
- **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.**
- **Target resolution times are agreed, documented, and communicated to ensure that expectations are realistic.**
- **Incidents are prioritized based on an agreed classification to ensure that incidents with the highest business impact are resolved first.**

## \*2.6 IT asset management



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

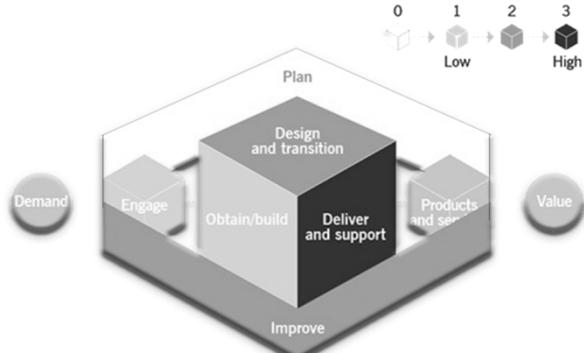
- maximize value
- control costs
- manage risks
- support decision-making about purchase, re-use, retirement, and disposal of assets
- meet regulatory and contractual requirements.

## \*2.6 IT asset management (Cont.)

**The activities and requirements of IT asset management will vary for different types of asset:**

- Hardware assets must be labelled for clear identification.
- Software assets must be protected from unlawful copying, which could result in unlicensed use.
- Cloud-based assets must be assigned to specific products or groups so that costs can be managed.
- Client assets must be assigned to individuals who take responsibility for their care. Processes are needed to manage lost or stolen devices, and tools may be needed to erase sensitive data from them or otherwise ensure that this data is not lost or stolen with the device.

## 2.7 Monitoring and event management



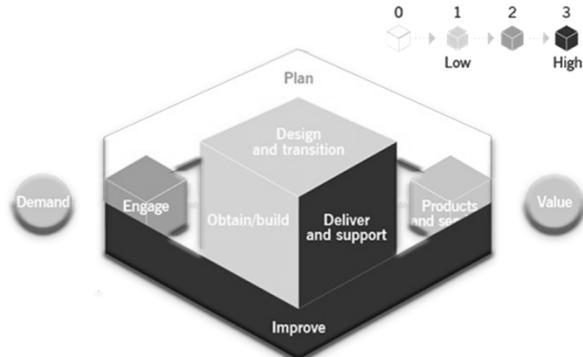
The purpose of the **monitoring and event management** practice is to systematically observe services and service components, and record and report selected changes of state identified as events. This practice identifies and prioritizes infrastructure, services, business processes, and information security events, and establishes the appropriate response to those events, including responding to conditions that could lead to potential faults or incidents.

## 2.7 Monitoring and event management (Cont.)

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.

Not all **events** have the same significance or require the same response. Events are often classified as informational, warning, and exceptions.

## \*2.8 Problem management



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.

\*

## Problem Management

Reducing the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors



## \*2.8 Problem management (Cont.)

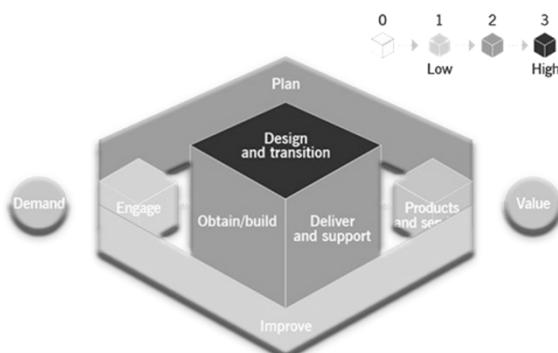
### Definitions

- 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 phases of problem management

## \*2.9 Release management



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

## \*2.9 Release management (Cont.)



Release management in a traditional/waterfall environment



Release management in an Agile/DevOps environment

In a DevOps environment, release management is often integrated with the continuous integration and continuous delivery toolchain.

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## Release Management



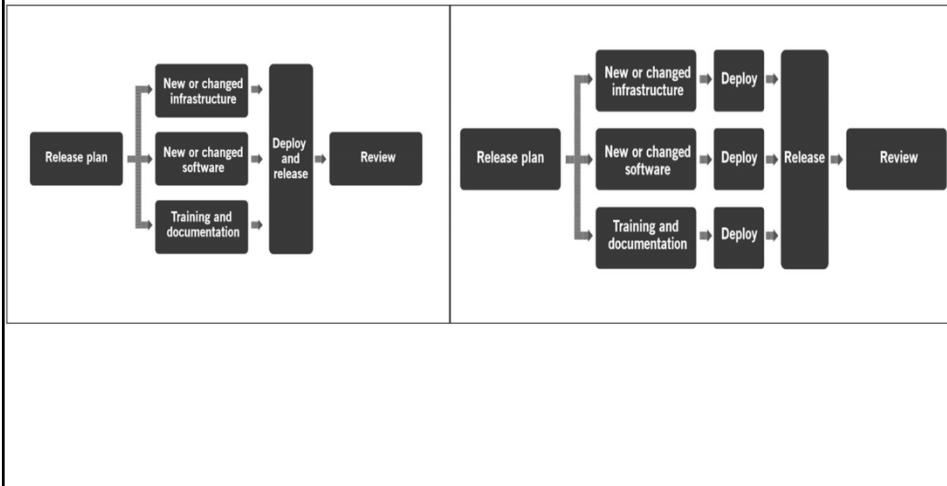
### Purpose:

- To make new and changed services and features available for use

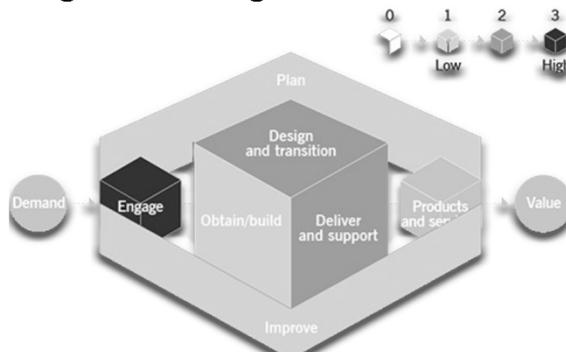
### Big idea:

- A release may comprise many different infrastructure and application components that work together to deliver new or changed functionality

## Waterfall vs. Agile/DevOps



## 2.10 Service catalogue management



The purpose of the **service catalogue** management practice is to provide a single source of consistent information on all services and service offerings, and to ensure that it is available to the relevant audience.

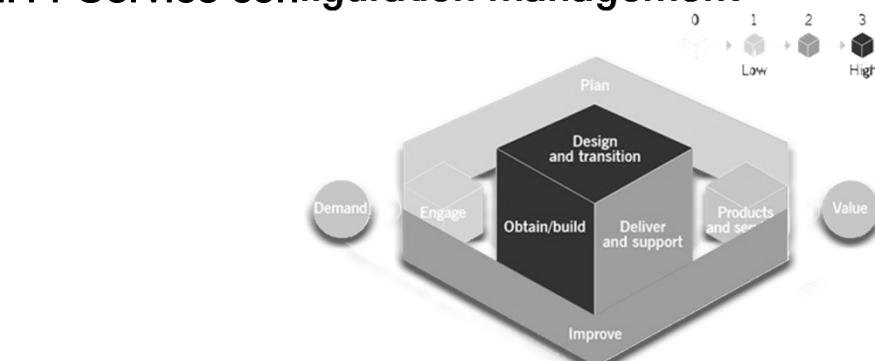
## 2.10 Service catalogue management (Cont.)

The list of services within the service catalogue represents those which are currently available and is a subset of the total list of services tracked in the service provider's service portfolio.

Service catalogue management ensures that service and product descriptions are expressed clearly for the target audience to support stakeholder engagement and service delivery.

The service catalogue may take many forms such as a document, online portal, or a tool that enables the current list of services to be communicated to the audience.

## \*2.11 Service configuration management



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.

\*

## Service Configuration Management

Ensuring accurate and reliable information about the configuration of services and the configuration items that support them is available when and where needed

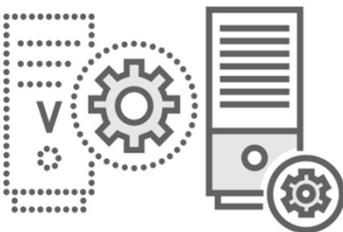


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## Configuration Item

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

\*



#### Service Configuration Management

- Ensures that accurate and reliable information about the configuration of services, and the CIs that support them, are available when and where it is needed
- This includes information on how CIs are configured and the relationships between them

\*

#### 2.11 Service configuration management (Cont.)

Configuration information can be stored and published in a single configuration management database (CMDB) for the whole organization, but it is more common for it to be distributed across several sources.

In either case it is important to maintain links between configuration records, so that people can see the full set of information they need, and how the various CIs work together.

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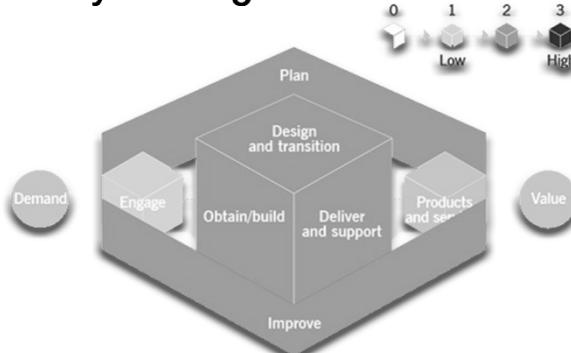
## CMS and CMDBs

### Configuration Management System

- A collection of CMDBs that allow organizations to know and understand how their configuration items are integrated and configured



## \*2.12 Service continuity management



The purpose of the service continuity management practice is to ensure that the availability and performance of a service are maintained at sufficient levels in case of a disaster. The practice provides a framework for building organizational resilience with the capability of producing an effective response that safeguards the interests of key stakeholders and the organization's reputation, brand, and value-creating activities.

## \*2.12 Service continuity management (Cont.)

Service continuity management supports an overall business continuity management (BCM) and planning capability by ensuring that IT and services can be resumed within required and agreed business timescales following a disaster or crisis.

It is triggered when a service disruption or organizational risk occurs on a scale that is greater than the organization's ability to handle it with normal response and recovery practices such as incident and major incident management.

An organizational event of this magnitude is typically referred to as a disaster.

### **Disaster**

'...a sudden unplanned event that causes great damage or serious loss to an organization. It results in an organization failing to provide critical business functions for some predetermined minimum period of time.'

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## Service Continuity Management



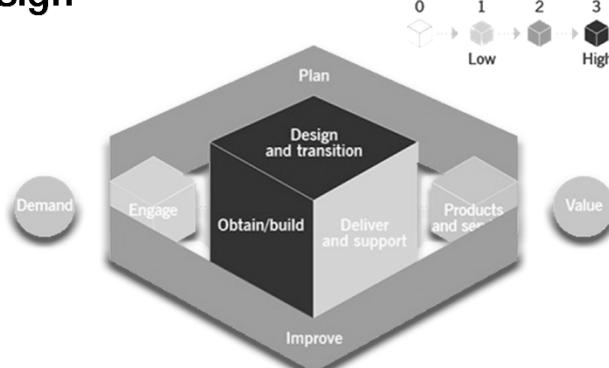
### **Purpose:**

- *To ensure that the availability and performance of a service is maintained at a sufficient level in the event of a disaster*

### **Big idea:**

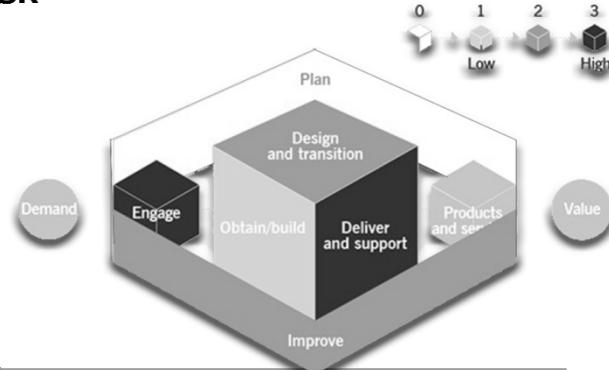
- Provides a framework for building organizational resilience with the capability of producing an effective response that safeguards the interests of key stakeholders

## 2.13 Service design



The purpose of the **service design** practice is to design products and services that are fit for purpose, fit for use, and that can be delivered by the organization and its ecosystem. This includes planning and organizing people, partners and suppliers, information, communication, technology, and practices for new or changed products and services, and the interaction between the organization and its customers.

## \*2.14 Service desk



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 Desk

Capturing demand for incident resolution and service requests



### \* Structure of service desk :

There are a range of possible structure and location options for service desks. The optimal solution for a service desk structure and location is dependent on your organization's needs.

- **Local:**

Located within or close to the user community it serves.

- **Centralized:**

Has staff located in one or more centralized service desk structures.  
More efficient and cost-effective

- **Virtual service desk:**

Personnel are located across any number or type of geographical or structural location.  
Giving the impression of a single, centralized service desk.



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- **Follow-the-sun service desk**

\*

Service desk must be the SPOC:

Regardless of the service desk structure that you select for your organization, you need to ensure that users know who they need to contact and how to contact the appropriate service desk.

A single telephone number, e-mail address, and web page – or one for each group if separate service desks are chosen – should be provided and well publicized.

Points of contact can be **advertised** in various ways to ensure that users know what number to call, which web site to go to, or what e-mail address to use.

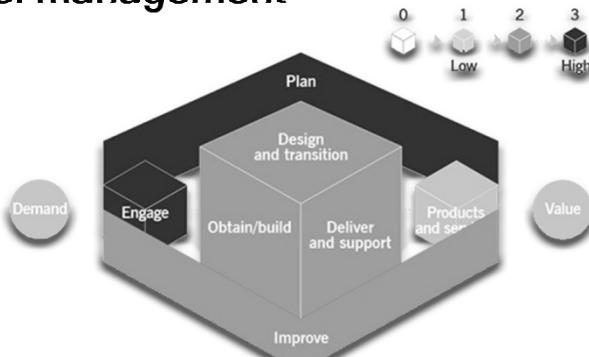
You can place contact information on hardware, telephones, notice boards, or corporate gifts such as pens or mugs.

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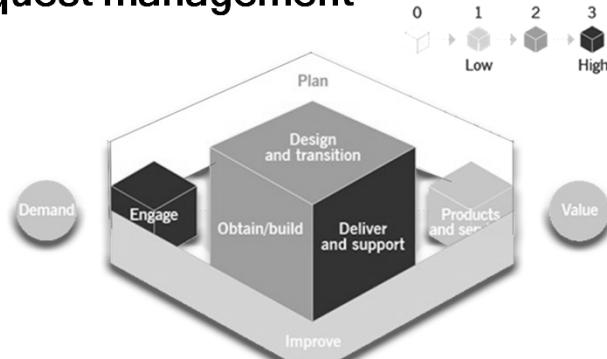
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## 2.15 Service level management



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.

## \*2.16 Service request management



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.

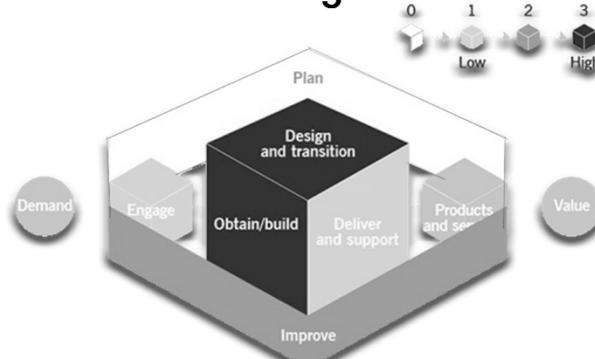
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## Service Request Management

Supporting the agreed quality of a service by handling all predefined, user-initiated service requests in an effective and user-friendly way



## 2.17 Service validation and testing

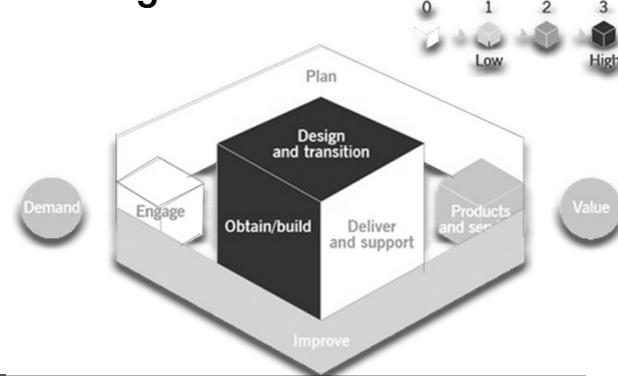


The purpose of the **service validation and testing** practice is to ensure that new or changed products and services meet defined requirements. The definition of service value is based on input from customers, business objectives, and regulatory requirements, and is documented as part of the value chain activity of design and transition. These inputs are used to establish measurable quality and performance indicators that support the definition of assurance criteria and testing requirements.

## 3. Technical management practices



## \*3.1 Deployment management



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.

\*

## Deployment Management

Moving new or changed hardware, software, documentation, processes, or any other service component to live environments



\*

## Deployment Management



### Purpose:

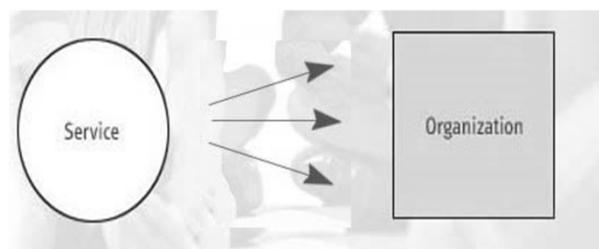
- To move new or changed hardware, software, documentation, processes, or any other component to live environments
- It may also be involved in deploying components to other environments for testing or staging

### Types of deployment:

- Big Bang
- Phased
- Continuous
- Pull

The **big bang** option simultaneously deploys a service to all users in an organization. This may be used when a new or altered application is introduced and consistency across the organization is important. For example, a banking franchise that makes changes to its ATM interfaces may use this to ensure uniformity of service to all its customers.

The **phased** approach initially only deploys a service to a section of the user base. The service is then rolled out across the organization at scheduled intervals. This is often used by retail organizations where new services, such as self-service sales points, are introduced into the retail environment in manageable phases.

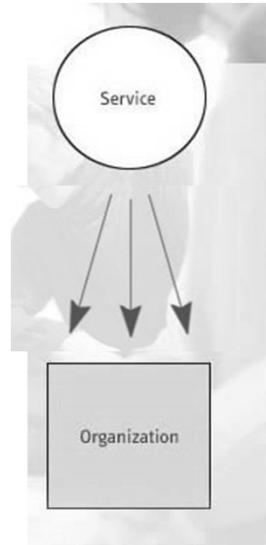


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The **push** approach deploys services from a central location and then pushes them out to target locations at a scheduled time. For example, antivirus software updates may be deployed to users in this manner.

The **pull** approach makes a service available at a central location and then users can deploy the service themselves, pulling it down to their own location, at a time of their choosing. This approach is often used with software updates where it isn't imperative that the user receives the changes immediately.

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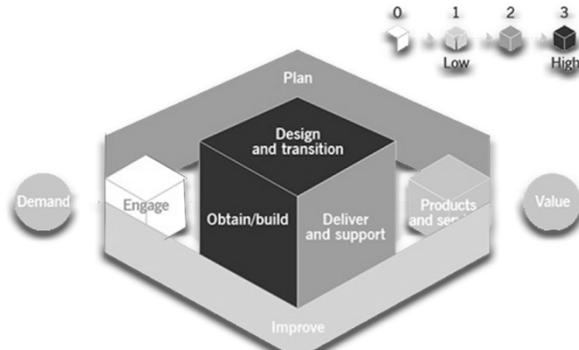
The **automation** approach deploys services automatically through mechanisms. Automation helps to ensure consistency and repeatability. For example, when installing software updates, discovery software tools automatically check individual workstations to determine if other installed software applications are compatible with the updates.

The **manual** approach uses personnel to deploy services. For example, a software application may require a user to manually select an option to begin the installation process. Deploying services manually isn't always the best option because repeated manual activities are often inefficient and prone to errors.

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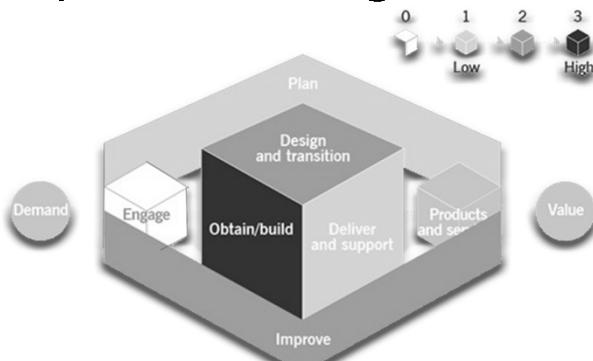


## 3.2 Infrastructure and platform management



The purpose of the **infrastructure and platform management** practice is to oversee the infrastructure and platforms used by an organization. When carried out properly, this practice enables the monitoring of technology solutions available to the organization, including the technology of external service providers.

## 3.3 Software development and management



The purpose of the **software development and management** practice is to ensure that applications meet internal and external stakeholder needs, in terms of functionality, reliability, maintainability, compliance, and auditability.

### 3.3 Software development and management (Cont.)

