ITIL v3
Service Management as a Practice

Service Management as a Practice

ITIL = IT Infrastructure Library

- Set of books giving guidance on the provision of quality IT services

- Common language

- Best practices in delivery of IT services

- Not standards!

- Platform independent

- 3rd version

Service Management as a Practice

- **ITIL Certification of Individuals - Foundation**
  - Content
    - > Entrance level
    - > General awareness of Service lifecycle
    - > Understanding key elements
    - > Knowledge of ITIL terminology
    - > Core principles
   - > Processes, roles and functions

  - Target group
    - > IT professionals
    - > People who need basic understanding (power users, customers, business service owners

  - Exam
    - > Multiple choice, 40 questions, 60 minutes, Pass score 65%, Close book

Service Management as a Practice

- **ITIL is not the only best practice**

| COBIT |
| ITIL |
| CMMI |

Procedures   Process Operation   Process Control   Process Strategy
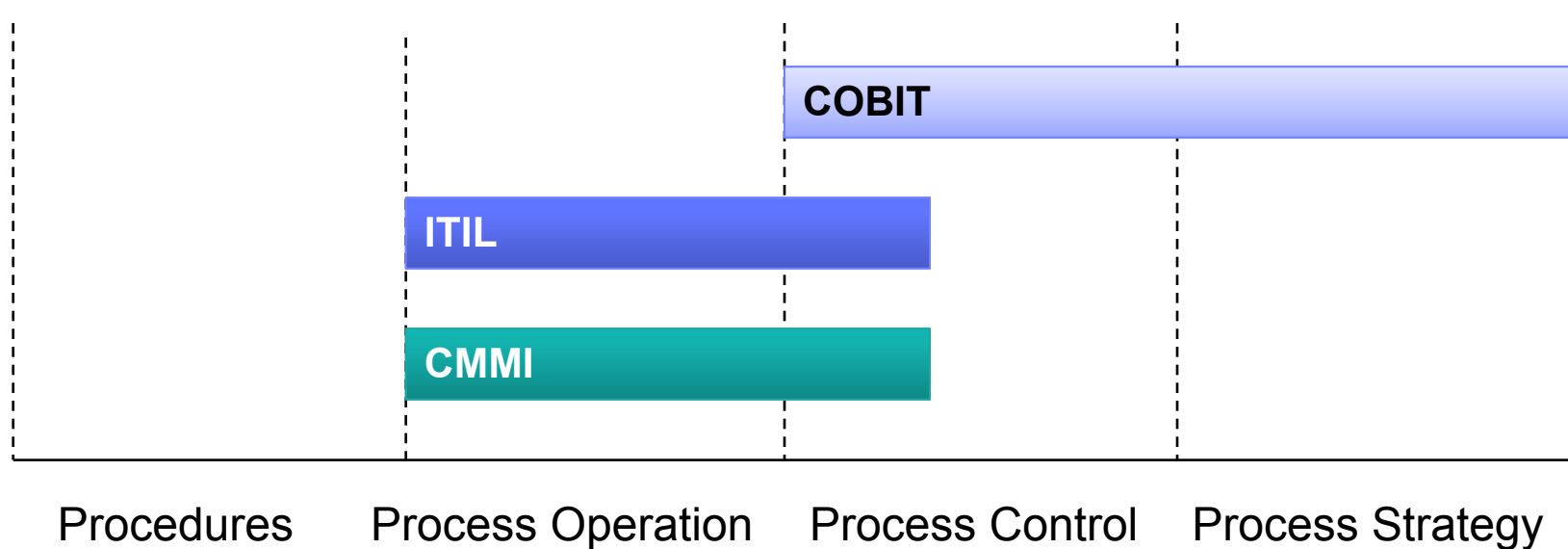
Service Management as a Practice

- **<u>Service management</u> is a set of specialized organizational capabilities for providing value to customer in the form of service**

- **<u>Service</u> is a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.**
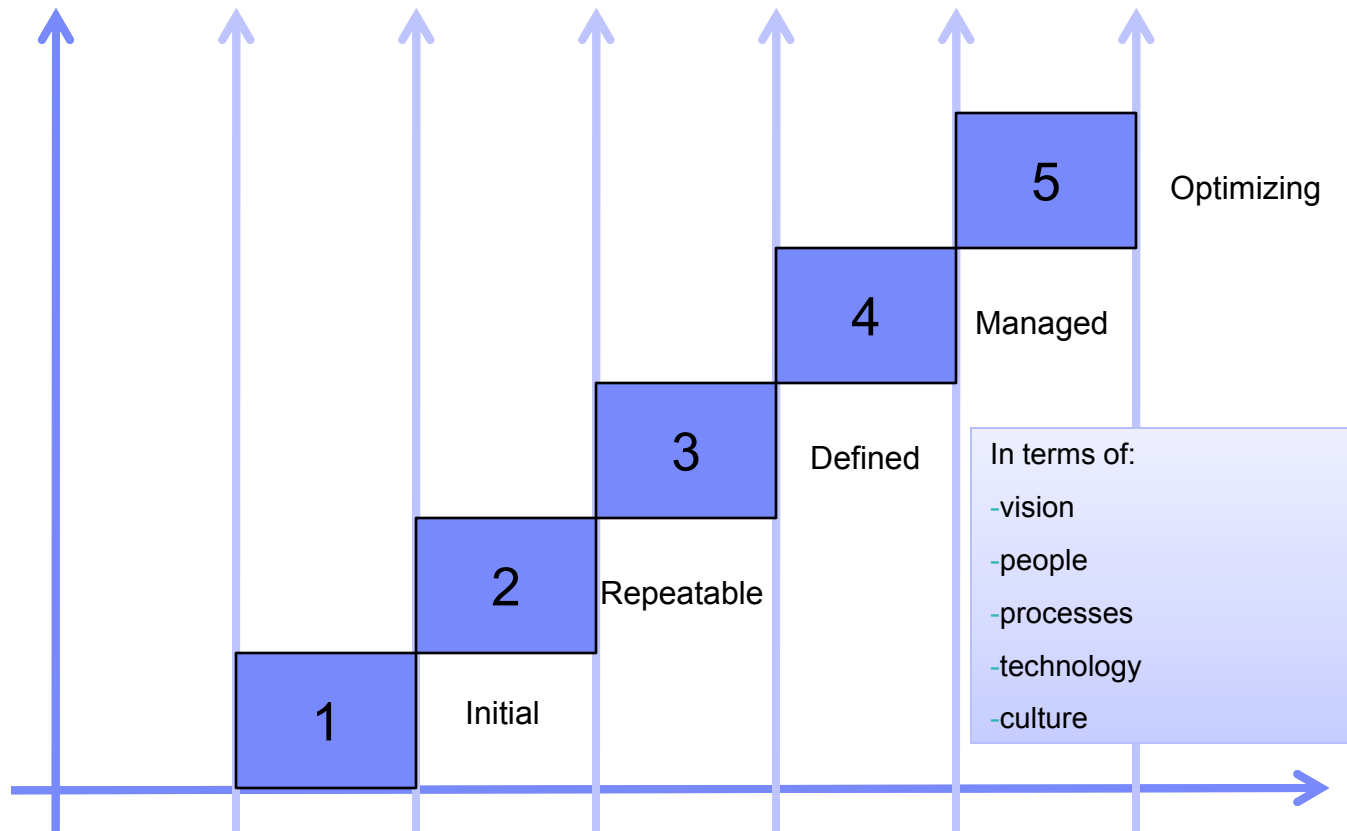
Service Management as a Practice

- **Functions, Roles and Processes**

  – Function is a team or group of people and tools they use to carry out one or more processes or activities

  – Role is a set of responsibilities, activities and authorities granted to a person or team

  – Process is a set of activities design to accomplish a specific objectives and provide value to customers or stakeholders. Process is strategic asset when it creates competitive advantage and market differentiation

Maturity Levels of the process

5 Optimizing

4 Managed

3 Defined

2 Repeatable

1 Initial

In terms of:

-vision

-people

-processes

-technology

-culture

Processes & KPI's

- **Process characteristics**
  - It is measurable
  - It delivers specific results
  - It delivers its primary results to a customer or stakeholder
  - It responds to specific events

- **Process Roles**
  - Process Owner - Responsible with documenting the process, defining process Key Performance Indicators (KPIs), improving the process, ensuring process staff undertake the required training
  - Process Manager - The Process Manager's responsibilities include planning and coordination of all Activities required to carry out, monitor and report on the Process.
  - Process Specific Roles - Responsible for specific task within the process

- **KPI's**
  - Key Performance Indicators (KPI's) are quantifiable measurements, agreed to beforehand, that reflect the critical success factors of a process.

Process Model/Description

- **Procedure:** a description of logically related activities and of who carries them out. A procedure may include stages from different processes. A procedure defines who does what

- **Work instruction:** defines how one or more activities in a procedure should be carried out

Service Management as a Practice

- **Organizations:**
  - are often highly dependent on the IT services
  - need IT services not only to support the organization but also to present new options to achieve the objectives

- **IT Service:**
  - one or more IT systems which enable a business process
  - is a product the organization can buy:
    - Does the service align with my expectations?
    - Can I expect a similar service the next time?
    - Is the service provided at a reasonable cost?

- **Providers of IT Services**
  - Type 1: Internal service provider
  - Type 2: Shared service provider
  - Type 3: External service provider

Continual Improvement - Deming's cycle

PDCA ("Plan-Do-Check-Act") Cycle is four-step problem-solving process typically used in quality control. It was made popular by Dr. W. Edwards Deming. Target is on

- **Continuous Improvement of service.**

  - **PLAN** - Establish the objectives and processes necessary to deliver results in accordance with the specifications.

  - **DO** - Implement the processes

  - **CHECK** - Monitor and evaluate the processes and results against objectives and Specifications and report the outcome.

  - **ACT** - Apply actions to the outcome for necessary improvement. This means reviewing all steps (Plan, Do, Check, Act) and modifying the process to improve it before its next implementation.

ITIL v3
Service lifecycle
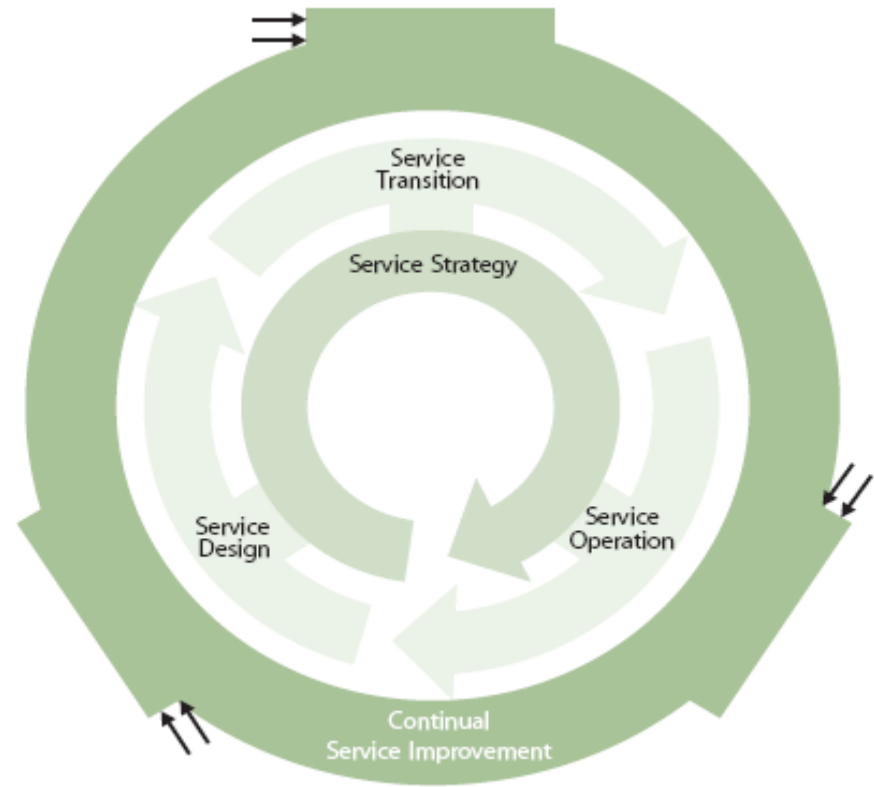
The ITIL Service lifecycle approach

- Manage services from the beginning to the end

- Remove process silos

- Enable integration with business processes

- Use Deming quality cycle (PDCA)

- Focused on service, not just process

- Coordinated with ISO 20000

- Improved measurability and traceability

5 stages of service life cycle = 5 core ITIL books

- **Service strategy**

- **Service design**

- **Service transition**

- **Service operation**

- **Continual service improvement**

Business value realization

| Service strategy | Service design | Service transition | Service operation |

Continual service improvement

The Service Lifecycle

| Problem management |
| Incident management |

Event m.

Request ful.

Access m.

Valid & Testing Operation m.

Release and Deployment mgmt

Knowledge management

Service asset and configuration management

Change management

Supplier management

Information security management

Service continuity mgmt

Availability mgmt

Service level mgmt

Service portf.mgmt Capacity management

Strategy gen Service catalogue mgmt Service reporting

IT Financial management Service measure

Demand management Service improv.

| Service strategy | Service design | Service transition | Service operation | Continual service improvement |

Processes

	Availability mgmt	Knowledge mgmt		
	Service cont mgmt	Evaluation		
	Supplier mgmt	Validation & Testing	Access mgmt	
Financial mgmt	Info security mgmt	Release & Deploy mgmt	Problem mgmt	
Demand mgmt	Capacity mgmt	Asset & Config mgmt	Request Fulfillment	Service measurement
Service portfolio mgmt	Service level mgmt	Change mgmt	Incident mgmt	Service reporting
Strategy Generation	Service catalogue mgmt	Transition Pl & Sup	Event mgmt	7-Steps improvement

Service strategy	Service design	Service transition	Service operation	Continual Service Improvement

Processes

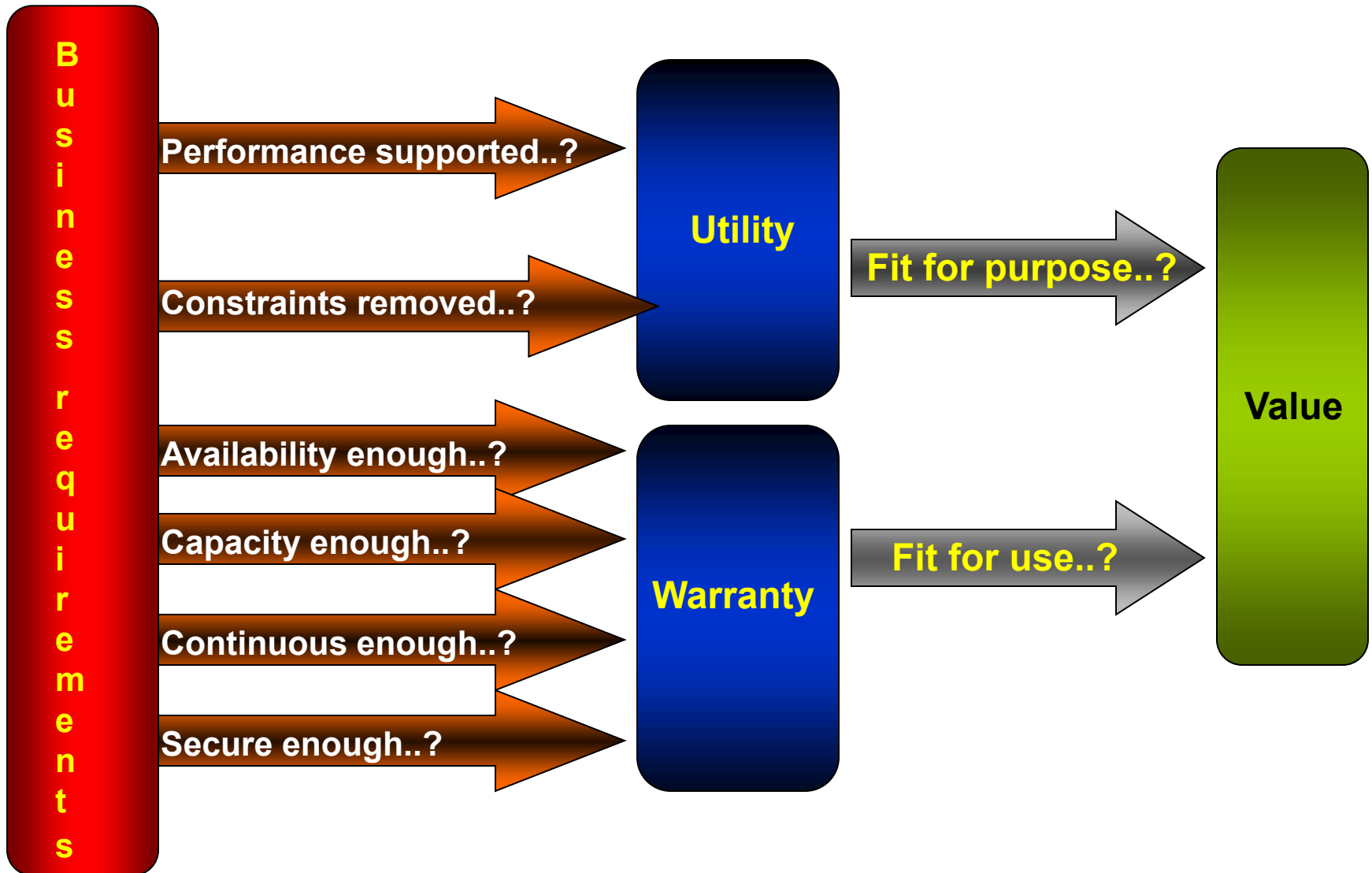|				
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Service portfolios (concepts of services definitions – outcome based) – from the perspective what is valuable for the customer
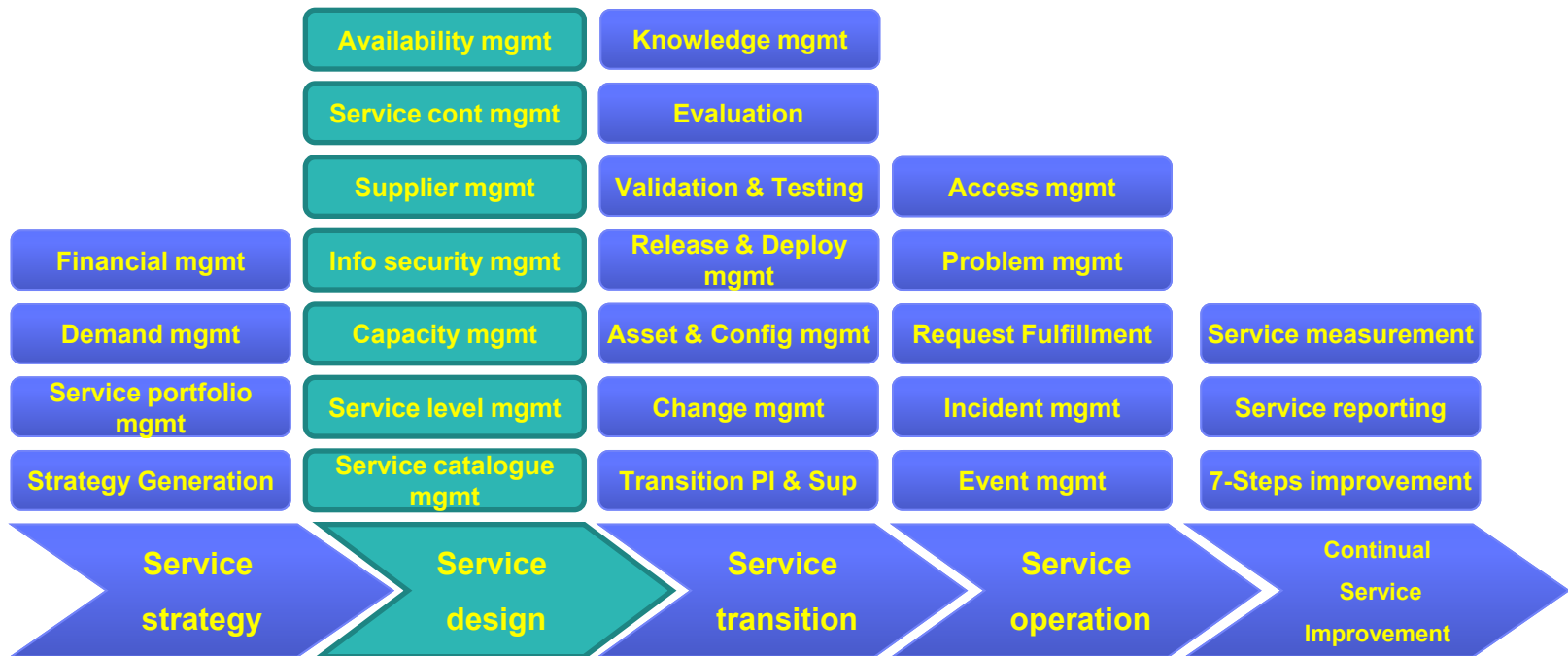
Business requirements

Performance supported..? → **Utility**

Constraints removed..? → **Utility**

Fit for purpose..? →

Availability enough..? → **Warranty**

Capacity enough..? → **Warranty**

Continuous enough..? → **Warranty**

Secure enough..? → **Warranty**

Fit for use..? →

Value

Strategy Generation KEY TERMS

Utility & Warranty: define services and work together to create value

- **Utility -** fit for purpose = what the customer gets, the positive impact

  - Functional requirements
  - What does the service do?
  - Features, inputs, outputs

- **Warranty-** fit for use = how well it is delivered to the customer, the certainty of impact – in terms of security, availability, capacity and continuity
  - How well the service do it?
  - Non-functional requirements
  - Capacity, performance, availability

Service Design Processes

	Availability mgmt	Knowledge mgmt		
	Service cont mgmt	Evaluation		
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Service strategy	**Service design**	**Service transition**	**Service operation**	**Continual Service Improvement**

Service Design

- Purpose
  - Design of new or changed services for introduction into the live environment
  - Design services to meet business objectives
  - Design processes to support the service lifecycle
  - Identify and manage risks
  - Design measurement methods and metrics
- Main input

Service level package
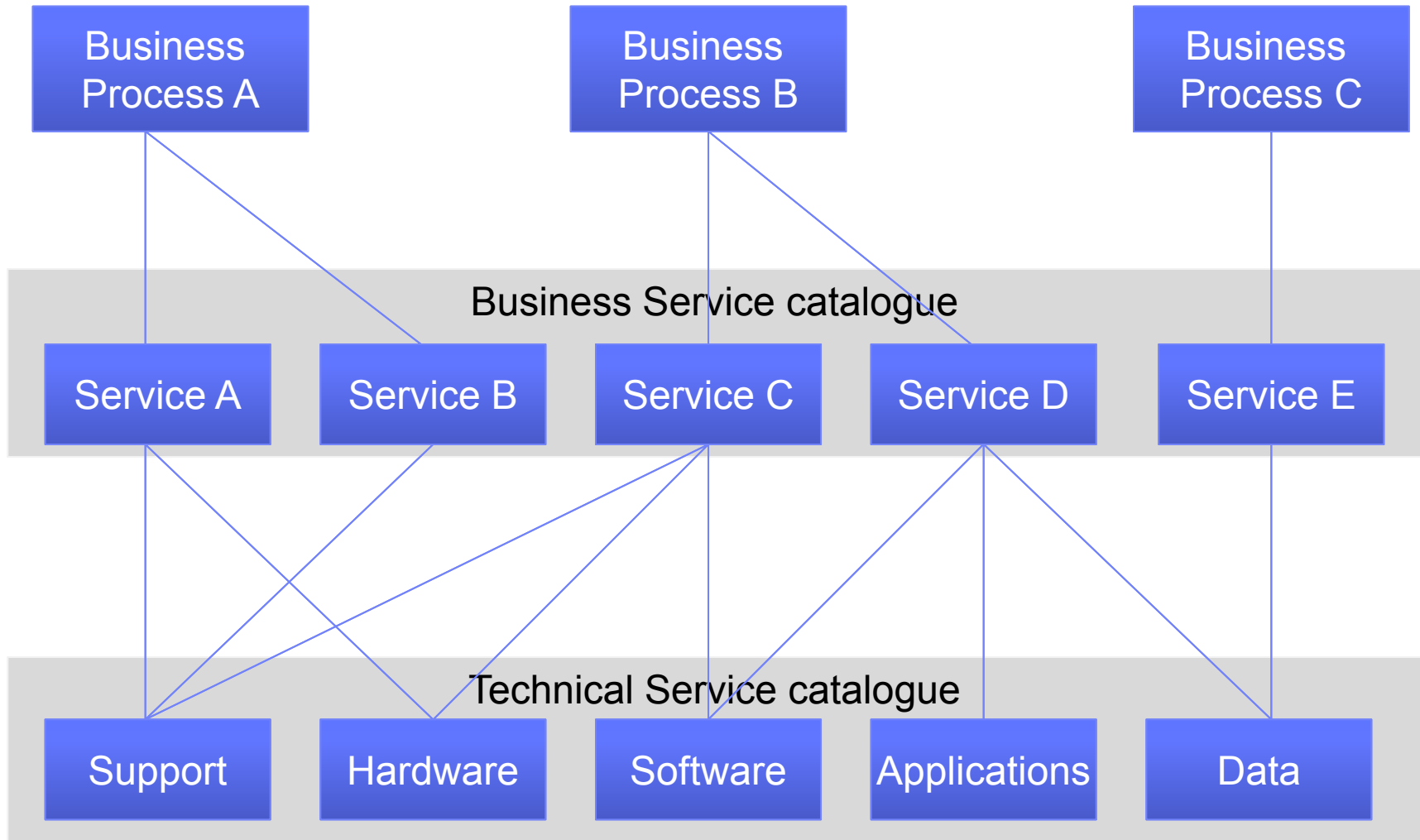
- Main output

Service design package

Service catalogue management (SCM) – Key terms

- The **Service Catalogue** provides a central source of information on the existing IT services delivered by the service provider organization.

- The ***Business Service Catalogue*** contains details of all the IT services delivered to the customer. This is the customer view of the Service Catalogue.

- The ***Technical Service Catalogue*** contains details of all the IT services delivered to the customer. This should underpin the Business Service Catalogue and not form part of the customer view.

Business vs. Technical service catalogue

Business Process A	Business Process B	Business Process C

Business Service catalogue

Service A	Service B	Service C	Service D	Service E

Technical Service catalogue

Support	Hardware	Software	Applications	Data

Service level management (SLM) - Goal

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

- The goal of the ***Service Level Management*** process is to ensure that an agreed level of IT service is provided for all current IT services, and that future services are delivered to agreed achievable targets.

Service level management (SLM) – Key terms

- ***Service Level Requirements (SLR)*** - A document that contains customer requirements regarding the IT services they want

- *Service Specification* - The translation of the customer requirements into "how" the IT organization is going to provide these services

- ***Service Level Agreement (SLA)*** - A document that defines agreed service levels between the customer and provider

- ***Underpinning Contract (UC)*** - A document that defines agreed service levels between the internal IT organization and an external provider

- **Operational Level Agreement** (**OLA**) - A document that defines agreed service levels between the internal IT organization and another internal provider

- *Service Quality Plan (SQP)* - The plan contains information about performance indicators for the IT organization to measure the Services

Service Level Management:
Relationships between documents and involved parties
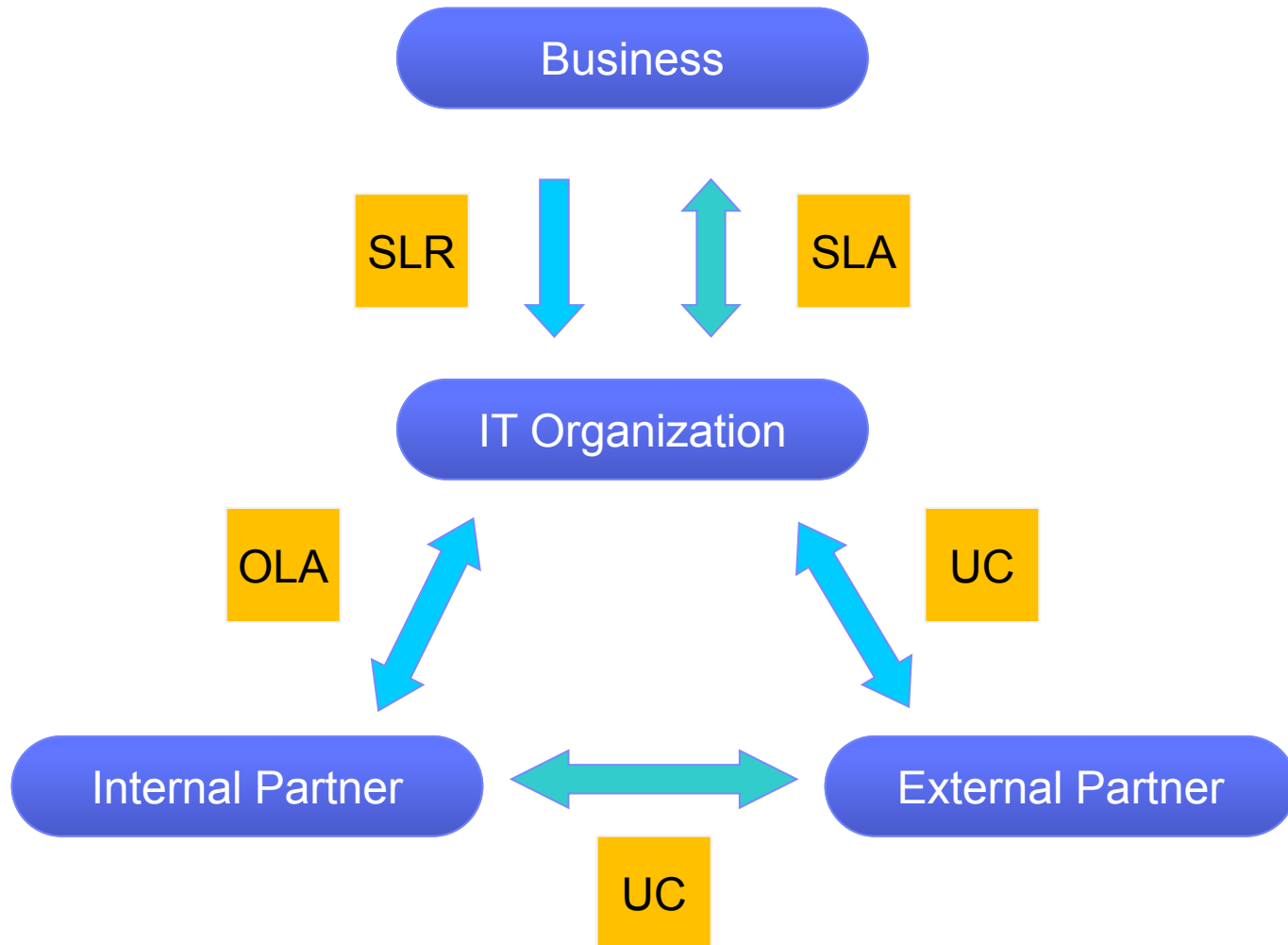
Capacity management - Goal

- ***Capacity Management*** provides a point of focus and management for all capacity and performance - related issues, relating to both services and resources.

- The **goal** of the ***Capacity Management*** process is to ensure that cost-justifiable IT capacity in all areas of IT always exists and is matched to the current and future agreed needs of the business, in a timely manner.

Capacity management – Key terms

- **Capacity Plan**
  - documents the current levels of resource utilization and service performance
  - forecasts the future requirements

- **Capacity Database** (**CMIS** - Capacity Management Information System)
  - Capacity plan
  - Capacity performance data
  - Business forecasts

- Sub-processes:
  - **Business Capacity Management** – translates business needs and plans into requirements for service and IT infrastructure
  - **Service Capacity Management** – manages, controls and predicts the performance and capacity of the IT services
  - **Component Capacity Management** – manages, controls and predicts the performance, utilization and capacity of IT components

Supplier Management – Goal

- The **goal** of the *Supplier Management* process is to manage suppliers and the services they supply, to provide seamless quality of IT service to the business, ensuring value for money is obtained

- It is essential that *Supplier Management* processes and planning are involved in all stages of the Service Lifecycle, from strategy and design, through transition and operation, to improvement.

Supplier Management – Key terms

- Supplier service improvement plans (SSIP) - records improvement plans with the supplier

- Supplier survey reports - feedback gathered from individuals that deal with supplier

- Supplier & Contract performance report – input for the review meetings to manage the quality

- Types of supplier agreements:
  - Co-sourcing – An informal combination of insourcing and outsourcing
  - Partnership (multi-sourcing) – formal agreement between two or more organizations to work together
  - Business process outsourcing – formal agreement provides and manages the business process

Supplier Management – Key terms

- Supplier and Contract database (SCD)
    - Part of SKMS (Service Knowledge Management System)
    - Contains
        - Policies
        - Supplier and contract details
        - Types of services
        - Products
        - Relationships with CI's (Configuration Item)

Supplier Management - Activities

- Purchasing/procurement

- Contract development and administration

- Strategic planning / sourcing

- Relationship management

- Supplier evaluation

- Economic forecasting

Supplier Management – Benefits

- Protected from poor supplier performance

- Supporting services align with business needs

- Better availability

- Clear ownership of supplier and contractual issues.

Supplier Management - Risks

- Lack of commitment from management

- Lack of information on future plans

- Suppliers agree to targets impossible to meet

- Suppliers are not cooperative

- The process becomes too bureaucratic

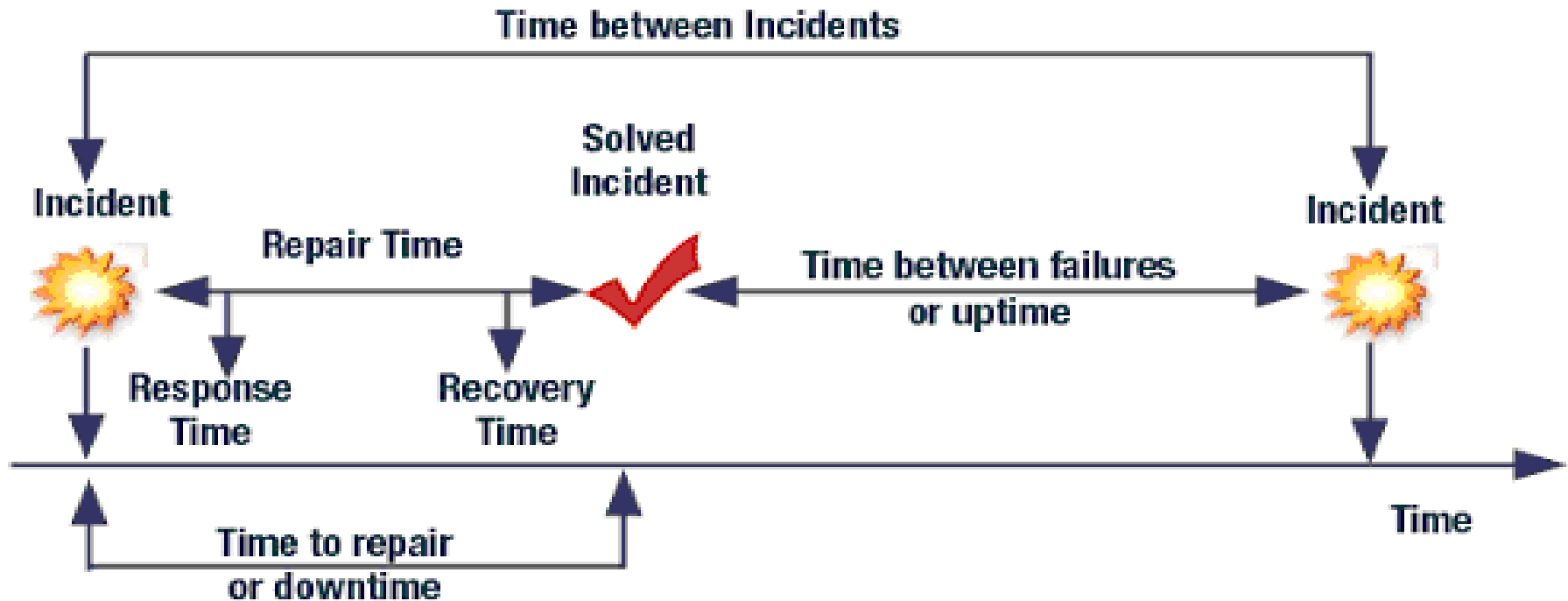- Poor corporate financial processes

Availability Management - Goal

Goal: To ensure that the level of service availability delivered in all services is matched to or exceeds the current and future agreed needs of the business in a cost-effective manner.

Concerned with availability of services and components – NOT PEOPLE.

Availability Management – Relationships

Time between Incidents

Solved Incident

Incident

Repair Time

Response Time

Recovery Time

Time between failures or uptime

Incident

Time

Time to repair or downtime

Mean Time Between Failures: Availability

Mean Time To Repair: Maintainability
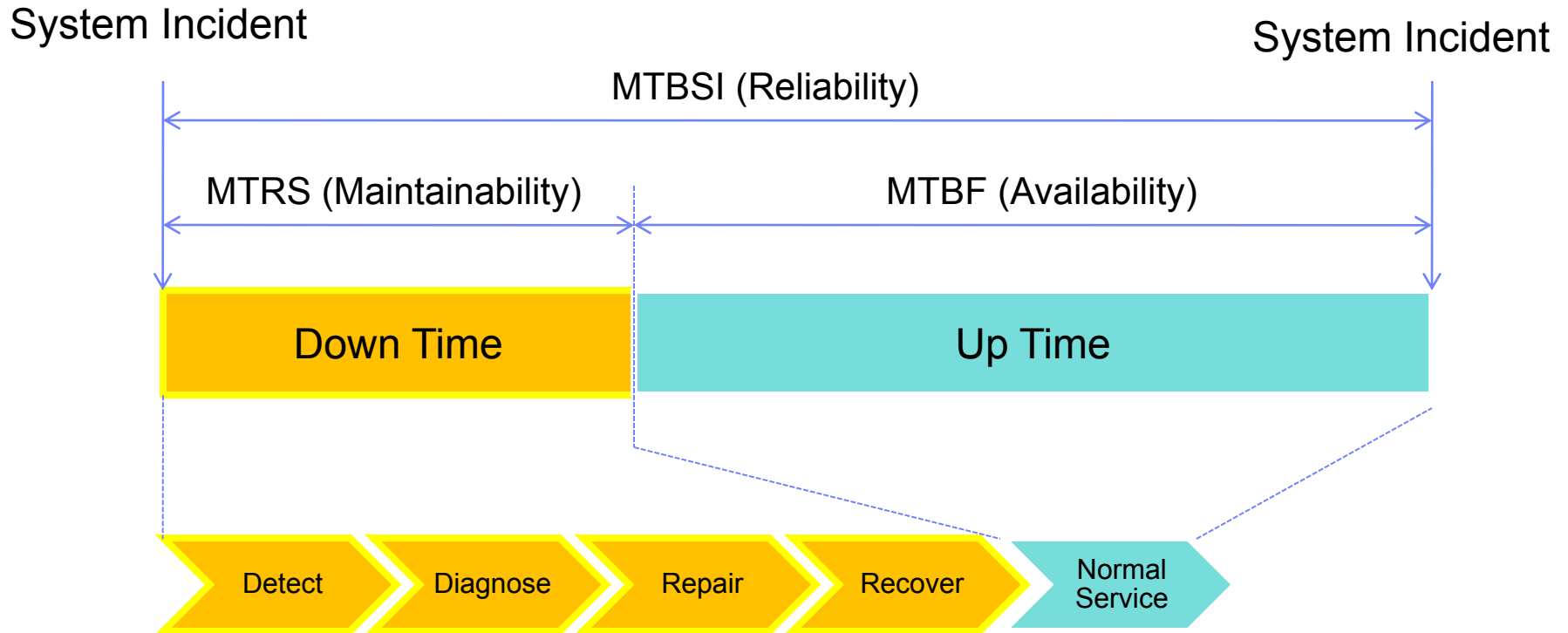
Mean Time Between System Incidents: Reliability

(Availability Management and the incident lifecycle)

Availability Management and the incident lifecycle

System Incident   System Incident

MTBSI (Reliability)

MTRS (Maintainability)   MTBF (Availability)

Down Time	Up Time

Detect → Diagnose → Repair → Recover → Normal Service

MTRS – **Mean Time** to **Restore Service** (depends on MTTR – Mean Time To Repair individual IT components)

MTBF – **Mean Time Between Failures** – Failure free period

MTBSI – **Mean Time Between System Incidents** – The mean period of time between two system incidents

Availability Management

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

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

- *Note: Downtime should only be included in the above calculation when it occurs within the Agreed Service Time (AST). However, total downtime should also be recorded and reported.*

Availability Management

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

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

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

Availability Management

Maintainability: a measure of how quickly and effectively a service, component or CI can be restored to normal working after a failure.

It is measured and reported as Mean Time to Restore Service (MTRS) and should be calculated using the following formula:

$$\text{Maintainability (MTRS in hours)} = \frac{\text{Total downtime in hours}}{\text{Number of service breaks}}$$
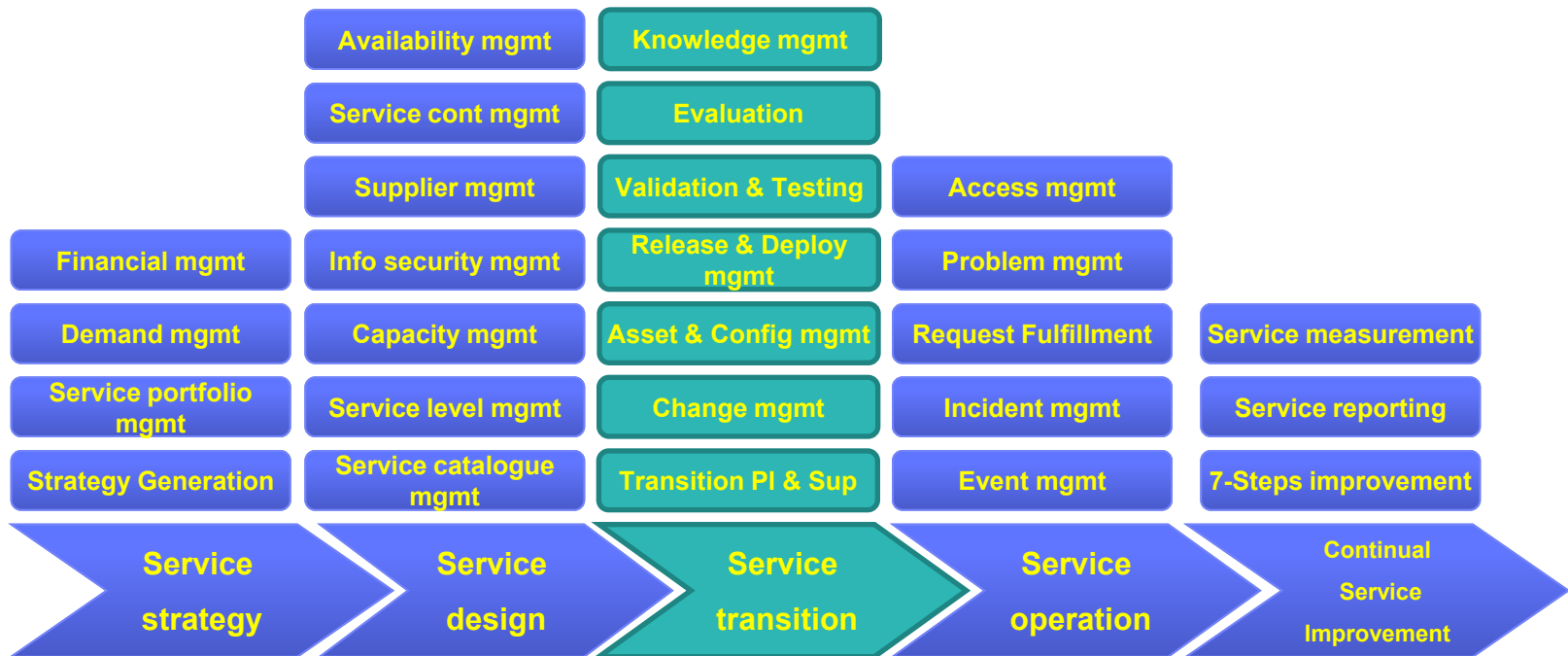
Availability Management - Key terms

- **Availability**: The ability of an IT Service or component to perform its required function at a stated instant or over a stated period of time.

- **AMIS:** Availability Management Information System

- **Reliability**: Freedom from operational failure.

- **Resilience**: The ability to withstand failure.

- **Maintainability (internal):** The ability of an IT component to be retained in or restored to, an operational state. - based on skills, knowledge, technology, backups, availability of staff.

Processes

Service strategy	Service design	Service transition	Service operation	Continual Service Improvement
	Availability mgmt	Knowledge mgmt		
	Service cont mgmt	Evaluation		
	Supplier mgmt	Validation & Testing	Access mgmt	
Financial mgmt	Info security mgmt	Release & Deploy mgmt	Problem mgmt	
Demand mgmt	Capacity mgmt	Asset & Config mgmt	Request Fulfillment	Service measurement
Service portfolio mgmt	Service level mgmt	Change mgmt	Incident mgmt	Service reporting
Strategy Generation	Service catalogue mgmt	Transition Pl & Sup	Event mgmt	7-Steps improvement

Service Transition

- **Purpose**

  – Deliver services that are required by the business into operational use

  – Implement all aspects of the service

  – Application and adaptation of service design, including arranging for modification of the design, where the need is detected during transition

  – Support knowledge transfer, decision support and re-use of processes, systems and other elements

Service Design Package	Service transition processes	Service in Prod. environment
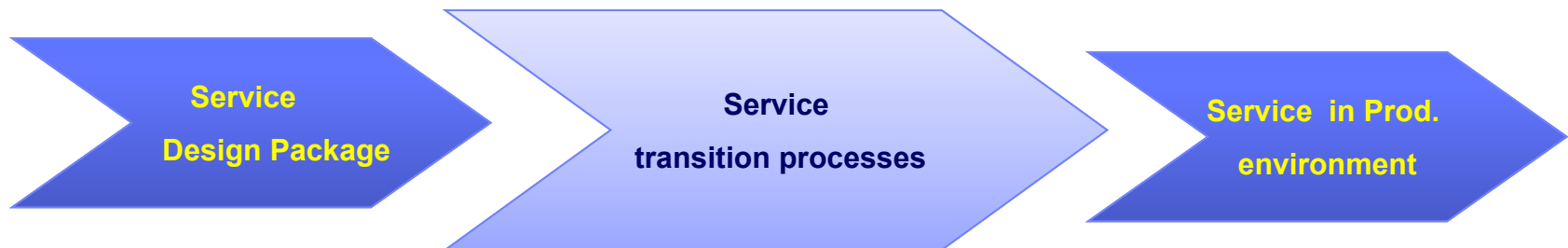
Change Management - Goals

- **Use standardized methods and procedures to control change implementation**

- Respond to the customer's changing business requirements while maximizing value and reducing incidents, disruption and re-work.

- Respond to the business and IT requests for change that will align the services with the business needs.

- Standardized methods and procedures are used for efficient and prompt handling of all changes.

- **Minimize the risks associated with change**

Change Management - Definitions

- **Change :** The addition, modification or removal of CIs

- **Request for Change (RFC) :** Form used to record details of a request for a change to any CI

- **Change Advisory Board (CAB) :** Group of representative people responsible for assessing all RFC's

- **CAB Emergency Committee (ECAB) :** Consists of one to three key staff Available 24 x 7

- **Forward Schedule of Changes (FSC) :** Schedule that contains details of all changes authorized for implementation

- **Projected Service Availability (PSA) :** Document used to outline effect of changes on availability levels as defined in SLA's

Change Management - Definitions

- **Change Categories**
    - **Category 0** : Is executed without prior contact. Used for workarounds/ temporary fixes
    - **Category 1** : Little or no impact. Change Manager authorizes this RFC
    - **Category 2** : Significant impact. CAB discussion needed. Change Manager requests advice on authorization and planning
    - **Category 3** : Major impact. Considerable resources required. Senior Management need to be a part of the CAB.

- **Change Priorities**
    - **Urgent**: change is required now, in order to achieve the service levels
    - **High**: as soon as possible, otherwise risk to current or future production
    - **Normal**: change solves serious mistakes or a lack in functionality
    - **Low**: change yields improvements that are not required by contract

- **Change Types:**
    - **Standard (pre- approved)**
    - **Ordinary :** Minor, Significant , Major.
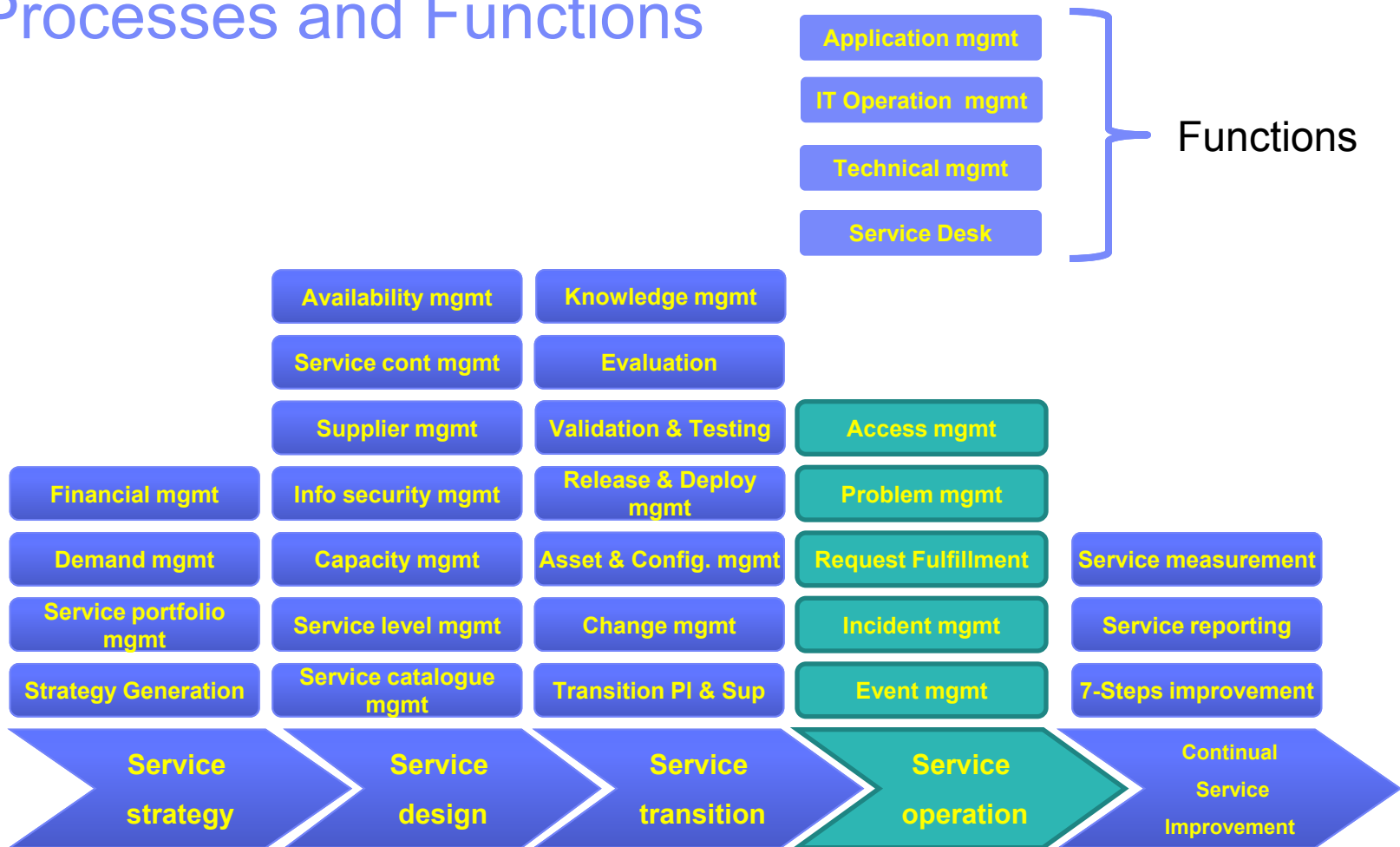   - **Urgent**

Change Management - Activities

- **Registration and classification:**
  - All requests for change must be legged using RFC form
  - The change manager briefly filter requests and reject any that are impractical, undesirable or repetitive
  - The change manager classify the changes

- **Approval:**
  - Based on the assigned change type the RFC is approved (Minor, Significant, Major)
  - The approved change is scheduled

- **Authorization and Implementation:**
  - Prepare and build the change
  - Test the change
  - Authorize the change
  - Implement the change
  - Document the change

- **Verify:**
  - Verification that the change was implemented according to the specification
  - Make the Post implementation review

Processes and Functions

	Functions
Application mgmt	
IT Operation mgmt	
Technical mgmt	
Service Desk	

	Availability mgmt	**Knowledge mgmt**		
	Service cont mgmt	**Evaluation**		
	Supplier mgmt	**Validation & Testing**	**Access mgmt**	
Financial mgmt	**Info security mgmt**	**Release & Deploy mgmt**	**Problem mgmt**	
Demand mgmt	**Capacity mgmt**	**Asset & Config. mgmt**	**Request Fulfillment**	**Service measurement**
Service portfolio mgmt	**Service level mgmt**	**Change mgmt**	**Incident mgmt**	**Service reporting**
Strategy Generation	**Service catalogue mgmt**	**Transition Pl & Sup**	**Event mgmt**	**7-Steps improvement**
Service strategy	**Service design**	**Service transition**	**Service operation**	**Continual Service Improvement**

Service Operation – Goals

- To coordinate and to carry out the activities and processes required to deliver and to manage services at agreed upon levels to business users and customers.

- To enable effectiveness and efficiency in delivery and support of IT Services.

- Responsible for the ongoing management of the technology

- Includes the implementation and carrying out of all ongoing activities required to deliver and support services.

- Realizing the value customers wants

Service in Prod. environment → **Service Operation processes** → **Service operated with agreed level**

Event Management – Key Terms

Event:

 - any detectable or discernable occurrence that has significance for the management of the IT infrastructure

- a change of state that has significance for the management of a Configuration Item (including IT Services). This can be detected by technical staff or be automated alerts or notifications created by an IT Service, Configuration Item(CI) or monitoring tool.

Event - informational - This refers to an event that does not require any action and does not represent an exception – Ex: A user logs onto an application.

Event - warning - event that is generated when a service or device is approaching a threshold

Event - exception - a service or device is currently operating abnormally (however that has been defined).

Alert: A warning that a threshold has been reached or something has been changed. (An event has occurred)

Trigger: An indication that some action or response to an Event may be needed.

Incident Management – Goals

- To restore normal service operation *as quickly as possible* and minimize the adverse impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained.

- Incidents can be reported by anyone who detects a disruption or potential disruption to normal service. This includes technical staff

-   Incident Management is the process for dealing with all incidents; this can include failures, questions or queries reported by the users (usually via a telephone call to the Service Desk), by technical staff, or automatically detected and reported by event monitoring tools.

- Known Error Record and the Incident Model are used for managing incidents

Incident Management – Activities (contd..)

Incident Classification

- **Categorization**

  Application, Hardware, Service Request, Security Incident

  WHY? To establish trends for use in Problem Management and other IT Service Management (ITSM) activities

  Prioritizing

  Impact : extent of the deviation from the normal service level; aspects are the number of users and the service concerned

  Urgency : To what extent the solution of an incident can be postponed

Priority = Impact X Urgency

Problem Management - Goals

- Minimize the adverse impact of Incidents and Problems on the business that are caused by errors within the IT Infrastructure,

- Seek to identify a permanent resolution to a number or reoccurring incidents

- Prevent recurrence of Incidents related to errors. In order to achieve this goal, Problem Management seeks to get to the root cause of Incidents and then initiate actions to improve or correct the situation

- **Problem Management** differs from **Incident Management** in that its main goal is the detection of the underlying causes of an Incident and their subsequent resolution and prevention. The goal of Incident management is to restore the service to the Customer as quickly as possible.

Problem Management – Key Terms

- **Problem** - The unknown underlying cause of one or more Incidents

- **Work-around** - A temporary fix to recover a disrupted service after an incident. Are documented into problem records

- **Known Error** - A Problem that is successfully diagnosed and for which a **Work-around** is known

- **Known Error Database (KEDB)** - Repository of known errors for the benefit and utilization of Incident Management

- **RFC** - A Request For **Change** to any component of an **IT** Infrastructure or to any aspect of **IT** services

Error in Infrastructure → Incidents → Problem → Known Error → RFC → Structural Resolution

Relationship between Incidents, Problems, Known Errors and RFCs

Continual Service Improvement - Processes

	Availability mgmt	Knowledge mgmt		
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Continual Service Improvement

Purpose

- Aims to continually align IT services to changing business needs by identifying and implementing improvements

- Continually looking for ways to improve process efficiency and effectiveness as well as cost effectiveness

Existing services and processes

Continual Service Improvement

Processes

Improved services and processes
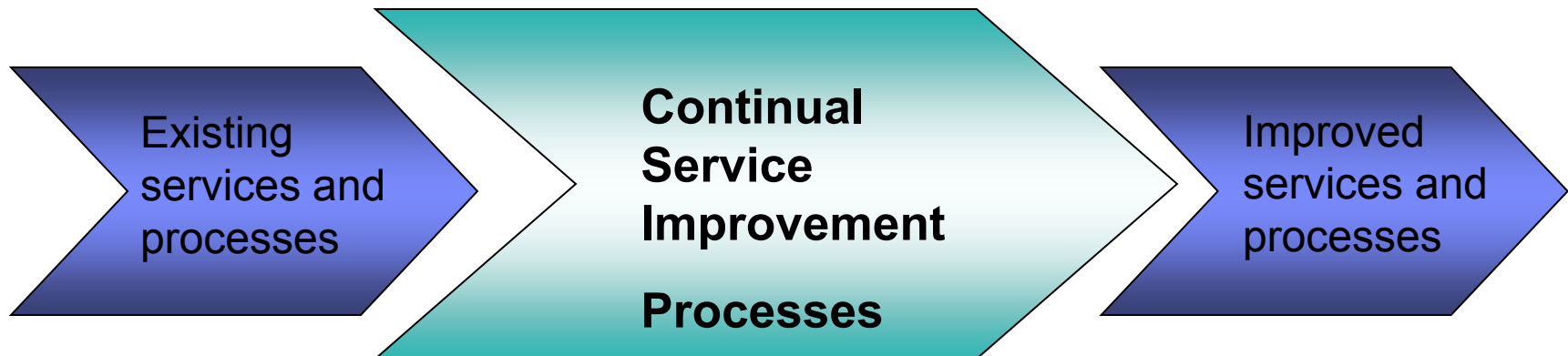
The RACI matrix.

R	responsibility – correct execution of process and activities
A	accountability – ownership of quality, and end result of process
C	consulted – involvement through input of knowledge and information
I	informed – receiving information about process execution and quality

Service Measurement - Metrics

- **Metrics:**
  - **define what is to be measured**
  - **are a system of parameters or ways of quantitative assessment**
  - **Include the way of how the measurement is carried out**

- **Types of metrics:**
  - **Technology metrics**
    (ex. Application performance, component serviceability, etc.)
  - **Process metrics**
    (ex. efficiency, compliance, etc.)
 - **Service metrics**
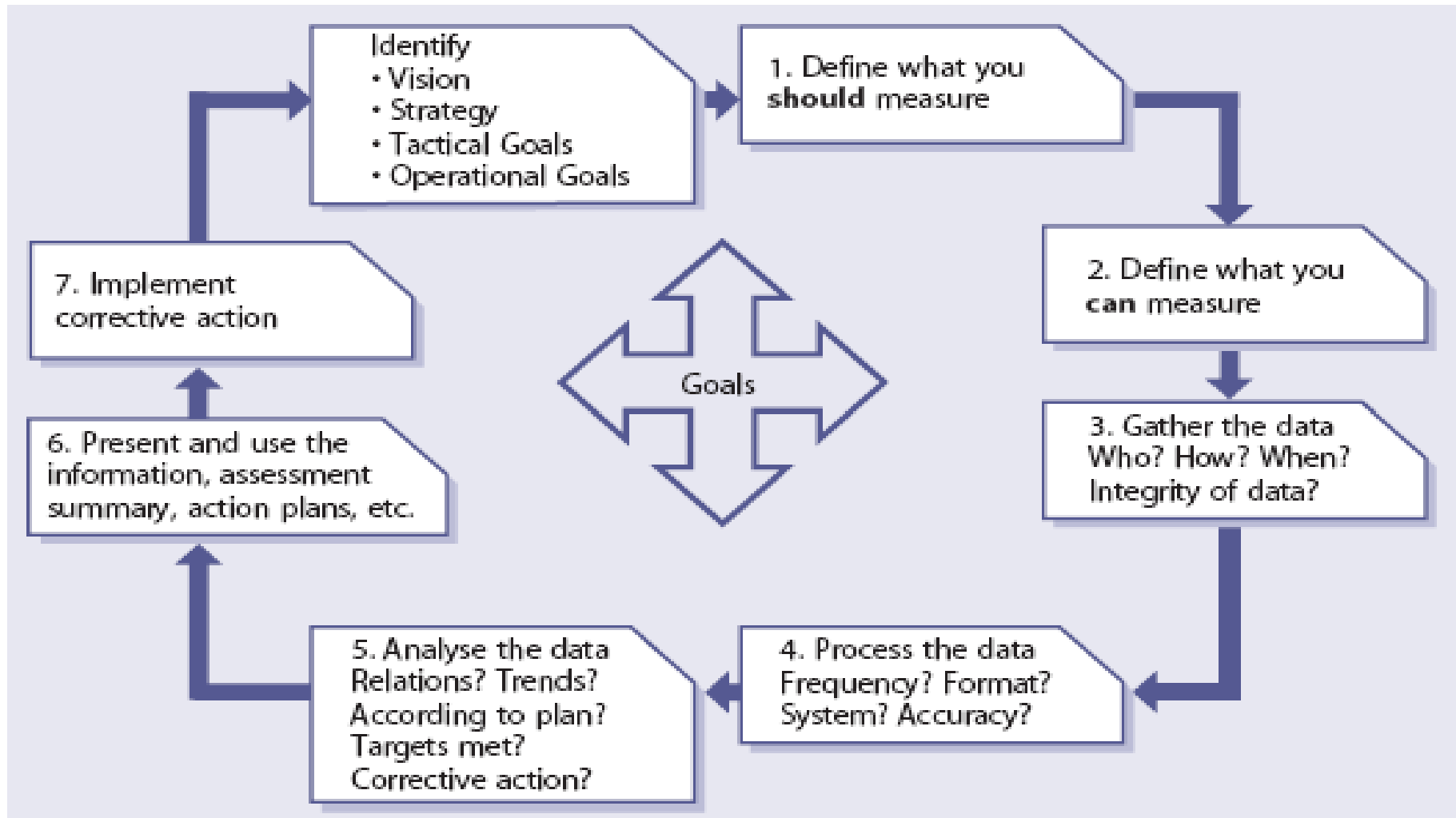   (ex. availability, quality, etc.)

Service Reporting - Objectives

- Identify the purpose, the target audience and what the report will be used for.

- Build a business-focused Service Reporting Framework.

- Define and agree the policy and rules with the Business and Service Design about how reporting will be implemented and managed.

  - **Agreement on what to measure and what to report on**

  - **Agreed definitions of all terms and boundaries**

  - **Basis of all calculations**

  - **Reporting schedules**

  - **Access to reports and medium to be used**

  - **Meetings scheduled to review and discuss reports.**

Service Reporting - Activities
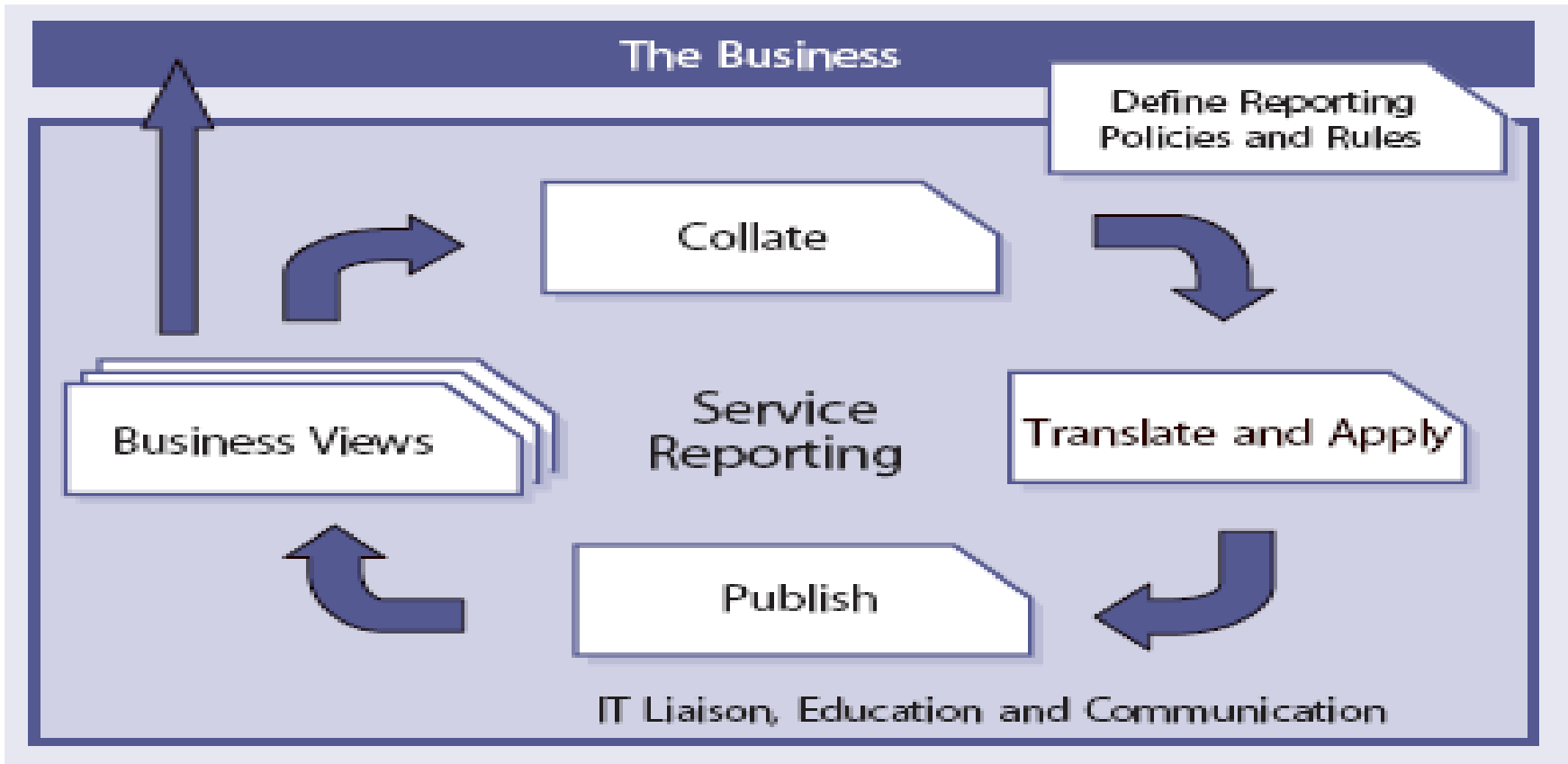
The 7-Step Improvement Process

Thank you

Question?