# ITIL v3

# **Service Management**



## 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



### 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



ITIL is not the only best practice



Procedures Process Operation Process Control Process Strategy



- <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.



#### 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





# 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



## 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



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 PDCA ("Plan-Do-Check-Act") Cycle is four-step problemsolving 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



# Processes





# **The Service Lifecycle**



# Processes





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





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# **Strategy Generation KEY TERMS**

**<u>Utility & Warranty</u>**: 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





# 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





# 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

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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**



(Availability Management and the incident lifecycle)


# Availability Management and the incident lifecycle

### System Incident

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System Incident



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:

(Agreed Service Time

(AST) – downtime)

Availability (%) = \_\_\_\_\_\_ X 100 %

Agreed Service Time (AST)

 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):

Reliability (MTBSI in hours) =	Available time in hours
	Number of breaks
Reliability (MTBF in hours) =	Available time in hours – Total downtime in hours
	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:

Maintainability (MTRS in hours) =	Total downtime in hours	-
	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.



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# Processes





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## **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





## **Change Management - Goals**

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- 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







# **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





# **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

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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.



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# 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



Relationship between Incidents, Problems, Known Errors and RFCs



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# **Continual Service Improvement - Processes**





## **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



## The RACI matrix.

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



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### **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**





Which of the following statements is INCORRECT?

The Service Owner:

A. Is responsible for the day-to-day monitoring and operation of the service they own

B. Is responsible for continual improvement and the management of change affecting the service they own

C. Is a primary stakeholder in all of the underlying IT processes which support the service they own

D. Is accountable for a specific service within an organization

Answer: A



Which of the following activities are helped by recording relationships between Configuration Items

(Cls)?

- 1. Assessing the impact and cause of Incidents and Problems
- 2. Assessing the impact of proposed Changes
- 3. Planning and designing a Change to an existing service
- 4. Planning a technology refresh or software upgrade
- A. 1 and 2 only
- B. All of the above
- C. 1, 2 and 4 only
- D. 1, 3 and 4 only

### Answer: B



Which Service Design process makes the most use of data supplied by Demand Management?

- A. Service Catalogue Management
- **B. Service Level Management**
- C. IT Service Continuity Management
- D. Capacity Management

Answer: D



Major Incidents require:

- A. Separate procedures
- B. Less urgency
- C. Longer timescales
- D. Less documentation

### Answer: A



Which role or function is responsible for monitoring activities and events in the IT Infrastructure?

- A. Service Level Management
- **B. IT Operations Management**
- C. Capacity Management
- D. Incident Management

### Answer: B

What are the three types of metrics that an organization should collect to support Continual Service

Improvement (CSI)?

- A. Return On Investment (ROI), Value On Investment (VOI), quality
- B. Strategic, tactical and operational
- C. Critical Success Factors (CSFs), Key Performance Indicators (KPIs), activities
- D. Technology, process and service

Answer: D

Which of the following is NOT a valid objective of Problem Management?

- A. To prevent Problems and their resultant Incidents
- B. To manage Problems throughout their lifecycle
- C. To restore service to a user
- D. To eliminate recurring Incidents

Answer: C



Availability Management is responsible for availability of the:

- A. Services and Components
- **B. Services and Business Processes**
- C. Components and Business Processes
- D. Services, Components and Business Processes

Answer: A



Who owns the specific costs and risks associated with providing a service?

- A. The Service Provider
- B. The Service Level Manager
- C. The Customer
- D. The Finance department

Answer: A



Which of the following are types of communication you could expect the functions within Service Operation to perform?

- 1. Communication between Data Centre shifts
- 2. Communication related to changes
- 3. Performance reporting
- 4. Routine operational communication
- A. 1 only
- B. 2 and 3 only
- C. 1, 2 and 4 only
- D. All of the above

### Answer: D



How many people should be accountable for a process as defined in the RACI model?

- A. As many as necessary to complete the activity
- B. Only one the process owner
- C. Two the process owner and the process enactor
- D. Only one the process architect

Answer: B
What guidance does ITIL give on the frequency of production of service reporting?

A. Service reporting intervals must be defined and agreed with the customers

B. Reporting intervals should be set by the Service Provider

C. Reports should be produced weekly

D. Service reporting intervals must be the same for all services

Which of the following is the BEST definition of the term Service Management?

A. A set of specialised organizational capabilities for providing value to customers in the form of services

B. A group of interacting, interrelated, or independent components that form a unified whole, operating

together for a common purpose

C. The management of functions within an organization to perform certain activities

D. Units of organizations with roles to perform certain activities



Which of the following is NOT a characteristic of a process?

- A. It is measurable
- B. Delivers specific results
- C. Responds to specific events
- D. A method of structuring an organization



Which of the following would be defined as part of every process?

- 1. Roles
- 2. Activities
- 3. Functions
- 4. Responsibilities
- A. 1 and 3 only
- B. All of the above
- C. 2 and 4 only
- D. 1, 2 and 4 only



Which of the following statements is CORRECT for every process?

- 1. It delivers its primary results to a customer or stakeholder
- 2. It defines activities that are executed by a single function
- A. Both of the above
- B. 1 only
- C. Neither of the above
- D. 2 only
- Answer: B



What is the BEST description of the purpose of Service Operation?

A. To decide how IT will engage with suppliers during the Service Management Lifecycle

B. To proactively prevent all outages to IT Services

C. To design and build processes that will meet business needs

D. To deliver and manage IT Services at agreed levels to business users and customers



Which of the following is the CORRECT definition of a Release Unit?

- A. A measurement of cost
- B. A function described within Service Transition
- C. The team of people responsible for implementing a release

D. The portion of a service or IT infrastructure that is normally released together



Which of the following do Service Metrics measure?

- A. Processes and functions
- B. Maturity and cost
- C. The end to end service
- D. Infrastructure availability



What is the BEST description of a Major Incident?

A. An Incident that is so complex that it requires root cause analysis before a workaround can be found

B. An Incident which requires a large number of people to resolve

C. An Incident logged by a senior manager

D. An Incident which has a high priority or high impact on the business

Event Management, Problem Management, Access Management and Request Fulfilment are part of

which stage of the Service Lifecycle?

- A. Service Strategy
- **B. Service Transition**
- C. Service Operation
- D. Continual Service Improvement



Which Functions are included in IT Operations Management?

- A. Network Management and Application Management
- B. Technical Management and Change Management
- C. IT Operations Control and Facilities Management
- D. Facilities Management and Release Management



What is the Service Pipeline?

A. All services that are at a conceptual or development stage

B. All services except those that have been retired

C. All services that are contained within the Service Level Agreement (SLA)

D. All complex multi-user services



Defining the processes needed to operate a new service is part of:

- A. Service Design: Design the processes
- B. Service Strategy: Develop the offerings
- C. Service Transition: Plan and prepare for deployment
- D. Service Operation: IT Operations Management

Which of these are objectives of Service Level Management

1: Defining, documenting and agreeing the level of IT Services to be provided

2: Monitoring, measuring and reporting the actual level of services provided

3: Monitoring and improving customer satisfaction

4: Identifying possible future markets that the Service Provider could operate in

A. 1, 2 and 3 only

- B. 1 and 2 only
- C. 1, 2 and 4 only

D. All of the above



Which process is responsible for managing relationships with vendors?

- A. Change Management
- B. Service Portfolio Management
- C. Supplier Management
- D. Continual Service Improvement



Data used to support the capacity management process should be stored in:

- A. A configuration management database (CMDB)
- B. A capacity database (CDB)
- C. A configuration management system (CMS)
- D. A capacity management information system (CMIS)



Who is responsible for defining Key Performance Indicators (KPIs) for Change Management?

- A. The Change Management Process Owner
- B. The Change Advisory Board (CAB)
- C. The Service Owner
- D. The Continual Service Improvement Manager

Which statement about Service Level Agreements(SLAs) is CORRECT?

A. They must contain legal wording because of their importance

B. There should always be a separate SLA for each specific customer

C. The wording must be clear and concise to allow no room for ambiguity

D. Changes to the SLA can only be requested by the customer



Which of the following is NOT a Service Desk type recognised in the Service Operation volume of

ITIL?

- A. Local
- B. Centralised
- C. Holistic
- D. Virtual



Match the following activities with the Deming Cycle stages

- 1. Monitor, Measure and Review
- 2. Continual Improvement
- 3. Implement Initiatives
- 4. Plan for Improvement
- A. 1 Plan, 2 Do, 3 Check, 4 Act
- B. 3 Plan, 2 Do, 4 Check, 1 Act
- C. 4 Plan, 3 Do, 1 Check, 2 Act
- D. 2 Plan, 3 Do, 4 Check, 1 Act



## Thank you

Question?

