ITIL®4 Foundation

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1 Introduction

This course is designed to provide learners an extensive understanding of the ITIL 4 principles and to show how they can improve their work and the work of their organization as a whole with the ITIL 4 guidance. The course will inspire you to serve as a change champion by sharing and using what you have learned, and continue to learn, about ITIL 4 to lead and mentor others.

Course Learning Objectives

- Service Management: Key Concepts
- The Guiding Principles
- The Four Dimensions Of Service Management
- The ITIL Service Value System - Service Value Chain
- Continual Improvement
- The ITIL Practices

At the end of the course, you will be able to:

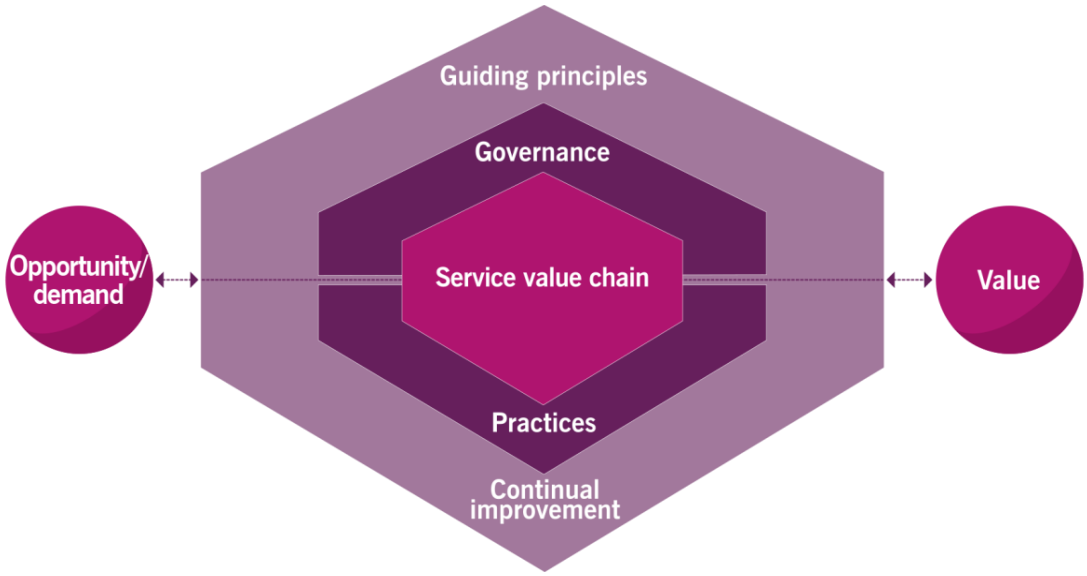
- Understand the key concepts of ITIL service management.
- Understand how ITIL guiding principles can help an organization to adopt and adapt ITIL service management.
- Understand the four dimensions of ITIL service management.
- Understand the purpose and components of the ITIL service value system, and activities of the service value chain, and how they interconnect.
- Understand the key concepts of continual improvement.
- Learn the various ITIL practices

Introduction to ITIL 4

ITIL 4 provides a practical and flexible approach to support various organizations on their journey to the new world of digital transformation.

ITIL 4 provides an end-to-end digital operating model for the delivery and operation of IT-enabled products and services and enables IT teams to continue play an important role in a wider business strategy. ITIL 4 also provides a holistic end-to-end approach that integrates frameworks such as Lean, Agile, and DevOps.

Structure and Benefits of ITIL 4



The key components of the ITIL 4 framework are the Service value System (SVS) and the Four Dimensions model. The SVS represents how the various components and activities of the organization work together to facilitate value creation through IT-enabled services. The SVS facilitates the integration and coordination and provides a strong, unified, value-focused direction for the organization.

To ensure a holistic approach to service management, ITIL 4 defines four dimensions of service management:

- Organizations and people
- Information and technology
- Partners and suppliers
- Value streams and processes

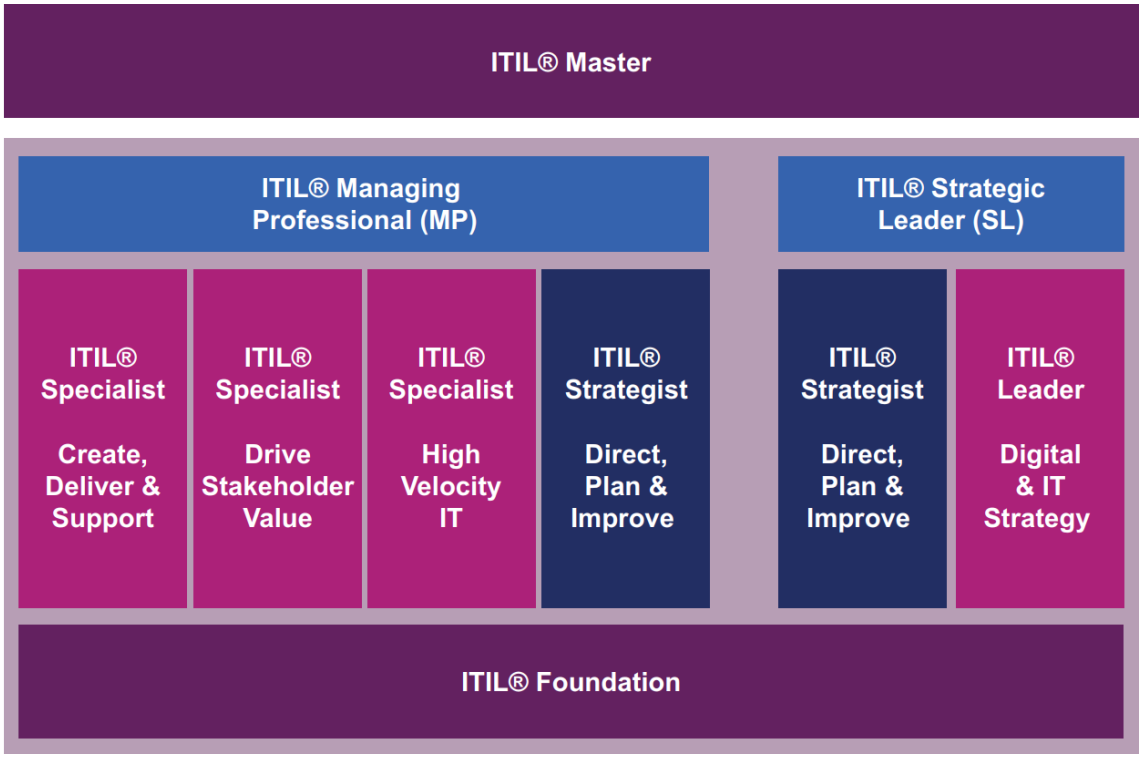
To ensure that SVS remains balanced and effective, it is important to give each of the four dimensions an appropriate amount of focus.

Exam Details

At the end of the course, an exam will be conducted. The exam details are:

- Bloom Level: 1 and 2
- Exam Format:
  - Close Book format
  - Questions: 40 Multiple Choice Questions (MCQs)
- passing Score: 65%
- Exam Duration:
  - 60 minutes
  - 15 minutes extra for non-native English speakers

After completing this training, you will be planning to take the ITIL® Foundation certification exam. To give you an idea about the certification exam, mock exams are included within the course.



The ITIL® (4) Foundation is the entry level certification, offering a general awareness of the key concepts, elements, and terminology of ITIL 4. This certification is targeted at professionals who need a basic understanding of ITIL or who would like to progress to higher levels of the ITIL 4 certification scheme.

After attaining the ITIL® Foundation certification, a candidate may choose to take the ITIL Managing Professional stream or the ITIL Strategic Leader stream.

The ITIL Managing Professional stream includes four modules. All four modules are valuable independently, but all four modules must be completed to obtain the ITIL® Managing Professional designation.

The completion of the ITIL® (4) Foundation is a prerequisite for the ITIL Managing Professional modules.

The ITIL Strategic Leader includes two modules, which are both valuable independently but both must be completed to obtain the ITIL® Strategic Leader designation. The ITIL Strategist Direct, Plan, & Improve module is common to both streams. The ITIL Leader Digital & IT Strategy module requires 3 years of experience (along with the ITIL (4) Foundation certification) as a prerequisite.

If a candidate completes all 5 modules, gaining both designations from the two streams, they will be eligible for assessment to become an ITIL® Master.

2 Service Management: Key Concepts

To address the real world challenges of service management and adopt a service management framework, such as ITIL, it is important to understand the key concepts of service management. These key concepts include:

- Organizations, service providers, service consumers and other stakeholders
- Value and value co-creation
- Products and services and
- Service relationships

Key Terms Covered in the Module

Organization	"A person or a group of people that has its own functions with responsibilities authorities, and relationships to achieve its objectives."
Service Management	"A set of specialized organizational capabilities for enabling value for customers in the form of services."
Service	"A means of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks."
Service provider	"When provisioning services, an organization takes on the role of the service provider. The provider can be external to the consumer's organization, or they can both be part of the same organization."
Service Consumer	"When receiving services, an organization takes on the role of the service consumer."
product	"A configuration of an organization's resources designed to offer value for a consumer."
value	"Value is the perceived benefits, usefulness and importance of something."
Customer	"A person who defines the requirements for a service and takes responsibility for the outcomes of service consumption."
user	A person who uses services."
Sponsor	"A person who authorizes budget for service consumption."
Service Offering	"A description of one or more services, designed to address the needs of a target consumer group. A service offering may include goods, access to resources, and service actions."

Service Relationship	“A co-operation between a service provider and service consumer. Service relationships include service provision, service consumption and service relationship management.”
Service relationship Management	“Joint activities performed by a service provider and a service consumer to ensure continual value co-creation based on agreed and available service offerings.”
Output	“A tangible or intangible deliverable of an activity.”
Outcome	“A result for a stakeholder enabled by one or more outputs.”
Cost	“The amount of money spent on a specific activity or resource.”
risk	“A description of one or more services, designed to address the needs of a target consumer group. A service offering may include goods, access to resources, and service actions.”
utility	“The functionality offered by a product or service to meet a particular need.”
warranty	“The assurance that a product or service will meet agreed requirements.

Value and Value CO-Creation

Organization

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

An organization can be a legal entity, a part of a legal entity, or a number of legal entities.

Organizations vary in size and complexity. An organization can be a legal entity, a part of a legal entity, or a complex network of legal entities united by common objectives, relationships and authorities.

The relationships between and within organizations are complex. Each organization depends on others in its operation and development. Organizations may hold different roles, depending on the different perceptions. In the context of service management, an organization can act as a service provider or as a service consumer; in reality, an organization can play both roles at any given moment.

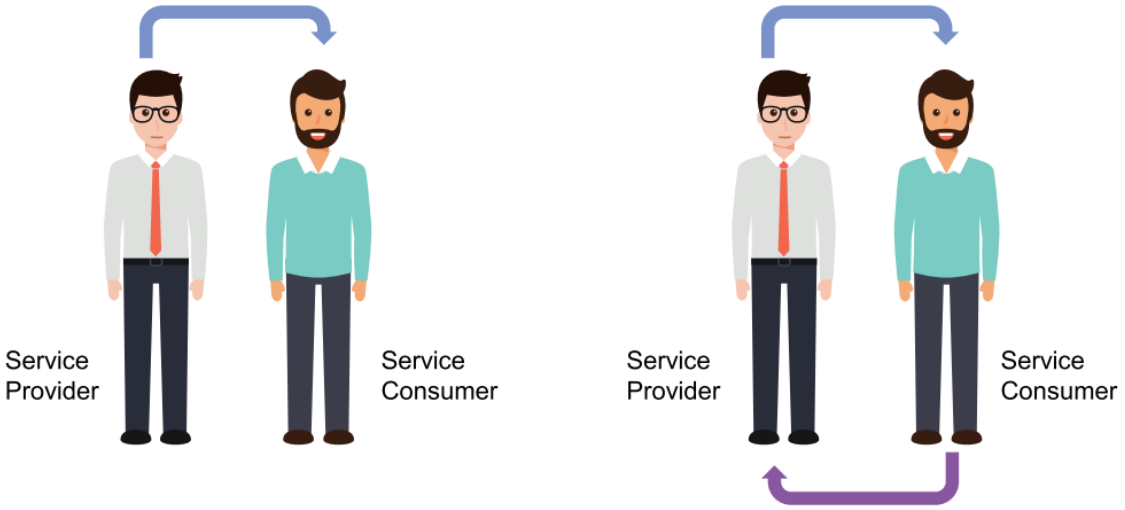
Value

Value is the perceived benefits, usefulness and importance of something.

The purpose of an organization is to create value for stakeholders. Different person, groups, or entities in an organization always operate in an integrated and coordinated way to facilitate value creation and fulfil a common set of objectives. The term ‘value’ is an important concept in service management, and it is a key focus of ITIL 4.

Value is not a fixed term; it is subject to the perception of the stakeholders, whether they are the service consumer or part of the service provider organization(s)

Co-Creation of value



There was a time when the relationship between the service provider and service consumer was considered to be mono-directional and distant.

It was determined that the service provider delivers the service and the service consumer receives value; the service consumer plays no role in the creation of value for themselves. This view fails to take into consideration the complex and interdependent service relationships that exist in reality.

Over the time, organizations recognized that value is co-created through an active collaboration between service providers and service consumers, and other stakeholders. Service providers should not work in isolation to define the value for their customers and users. They should establish service relationships with consumers to co-create value. Service relationships are mutually beneficial, interactive service relationships with their consumers to understand the consumer’s perspective of value. This will empower service consumers to contribute to the definition of requirements, design of service solutions, and to service creation and/or provisioning itself.

Service providers, service Consumers, and Other stakeholders

One of the most important stakeholder groups for any organization is service consumers – organizations and individuals that consume the services the organization provides. However, in service management there are many other groups of stakeholder, including investors and shareholders, regulators, partners, communities, and societies. Each of these stakeholders must be understood in the context of the creation of value in the form of services. The organization itself (service provider) is also a key stakeholder, including its employees, managers and owners.

For the success and the continued existence of an organization, it is important that relationships with all key stakeholder groups are considered and managed. If stakeholders do not relate to with what the organization does or how it does it, the provider's relationships with its consumers can be impacted badly.

Service Provision

When provisioning services, an organization takes on the role of the service provider. The provider can be external to the consumer's organization, or they can both be part of the same organization.

It is important that the service provider has a clear understanding of who its consumers are in a given situation and who the other stakeholders are in the associated service relationships.

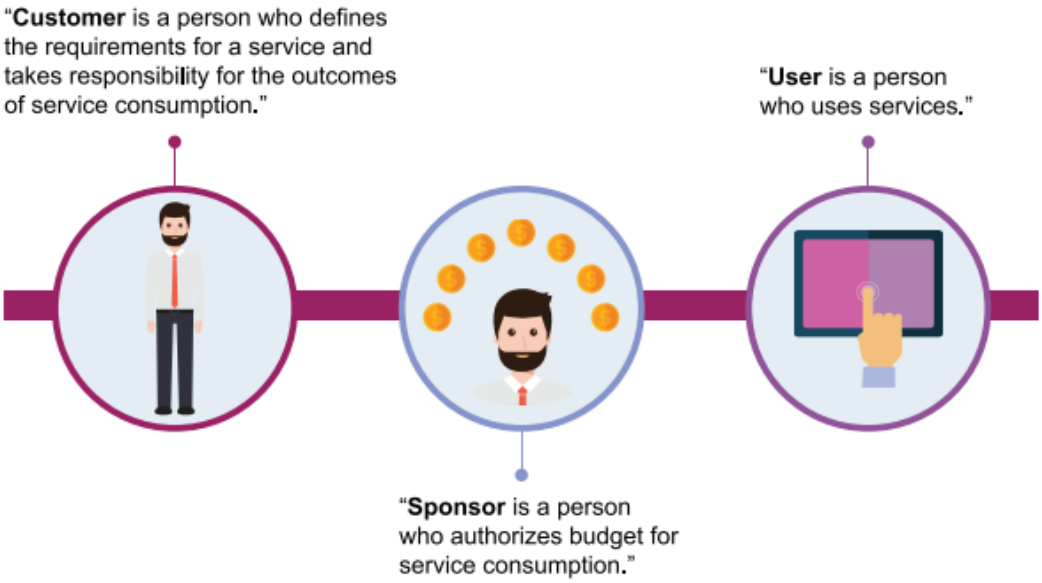
The service provider and service consumer can be different organizations, or they can both be part of the same organization.

One simple example of provider-consumer model is where the service provider can be the IT department of an organization and other departments or units can be regarded as consumers. In reality, different comprehensive provider-consumer models exist. For example, a service provider can sell services on the open market to individual consumers or other organizations, or they can be part of a service alliance.

Service Consumers

When receiving services, an organization takes on the role of the service consumer.

Service consumer is a generic role; in practice, service consumption includes more specific roles: customer, user, and sponsor.

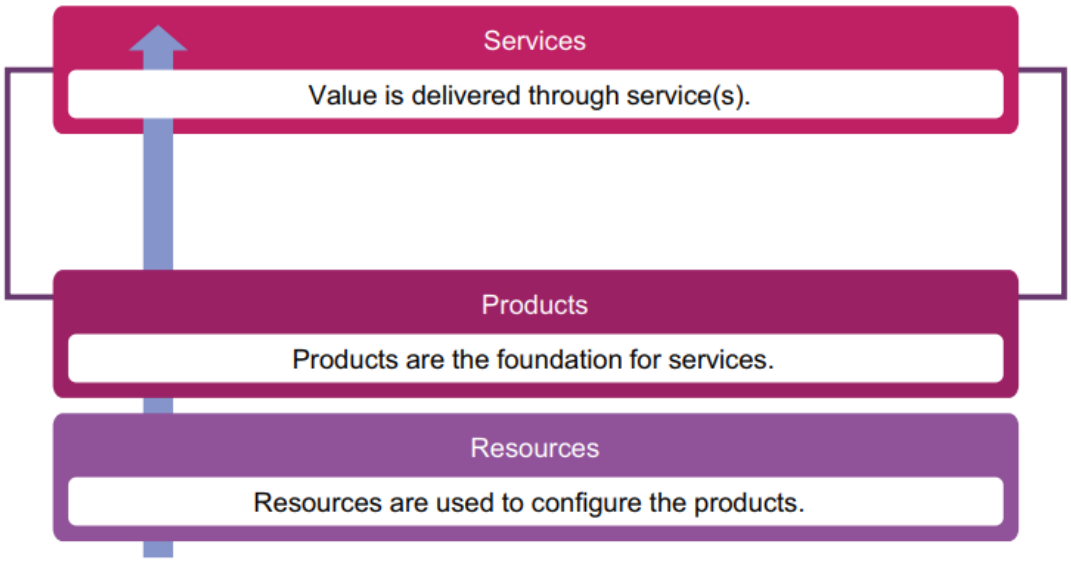


Service consumer is a generic ole that is used to simplify the relationship between service provider and service consumer in a service relationship. In practice, the service consumption involves more specific roles such as customer, users and sponsors. Each of these roles may have different definitions of value and sometimes even conflicting expectations from services.

If an organization wishes to purchase cab services for its employees from a car rental service provider, the three consumer roles may be distributed as follows:

- The Administration Officer and key communications team members fill the role of customer, who analyze the cab requirements of the company's employees and negotiate the contract with the car rental service provider and monitor the service provider's performance against the contracted requirements.
- The Finance Manager fills the role of the sponsor, who reviews the proposed service arrangement and approves the cost of the contract as negotiated.
- The employees (including the Administration Officer, Finance Manager and communications team members) fill the role of users when they order, receive, and use the cab services.

Value: services, products, and resources



The central component of service management is service. The service provider delivers value through service. The services that an organization provide are based on products. Products are configuration of an organization's resources designed to offer value for a consumer.

Service

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

All services have a service cost when they become operational and this cost must be managed. To avoid taking risks, consumers look to service providers to satisfy their need for those services. The service provider, on the other hand, provides those services according to the requirements of the customers.

Products

Product is a configuration of an organization's resources designed to offer value for a consumer.

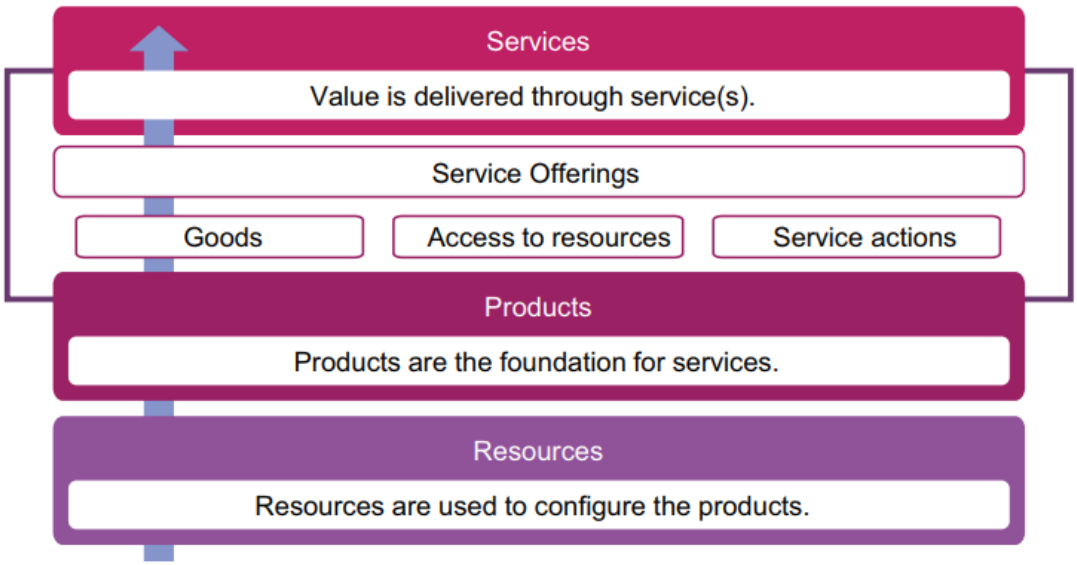
The services that an organization provides are based on one or more of its products. Organizations own or have access to multiple resources, such as people, information and technology, value streams and processes, and suppliers and partners. Products are configurations of these resources, created by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

Each product that is offered by an organization is created in consideration to the requirements of number of target consumer groups. A product is not exclusive to one consumer group and can be used to address the requirements of numerous different groups. The products are tailored to meet the requirements of the different consumer groups and to appeal to them.

Products are usually complex and are not completely visible to the consumer. The part of the product that is actually visible to the consumer does not always represent the complete components that are part of the product and that support its delivery.

Service Offering

Service Offering is a description of one or more services, designed to address the needs of a target consumer group. A service offering may include goods, access to resources, and service actions.



Service providers offer their services to the consumers in the form of service offerings. Service offerings describe one or more services based on one or more products. Different offerings can be created based on the same product, which allows the product to be used in multiple ways to address the needs of different consumer groups. Service offerings are designed in consideration to specific target consumer groups.

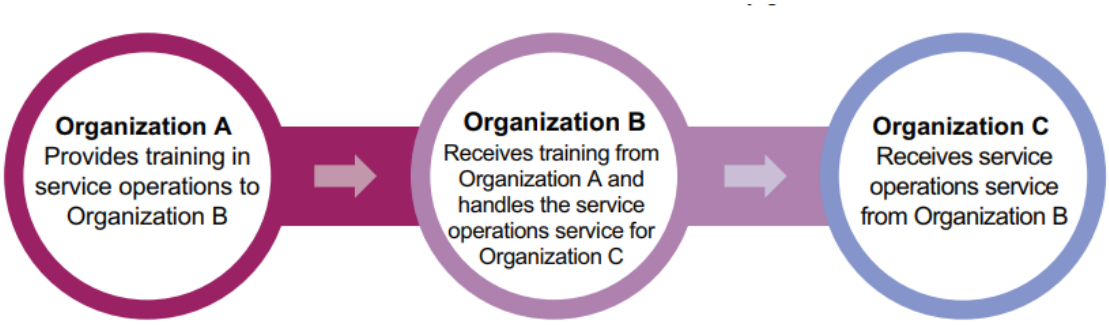
Components of service Offerings

The table provides the description and example for the typical components of a service offering.

Component	Description	Example
Goods	● Supplied to the consumer ● Ownership is transferred to the consumer ● Consumer takes responsibility for future use	Mobile, laptop
Access to resources	● Ownership is not transferred to the consumer ● Access is granted or licensed to the consumer under agreed terms and conditions ● Consumer can access the resources during the agreed consumption period and according agreed service terms	Internet network, license for operating system
Service actions	● Performed by the service provider to address a consumer need ● Performed according to agreement with the consumer	User support

Service Relationships

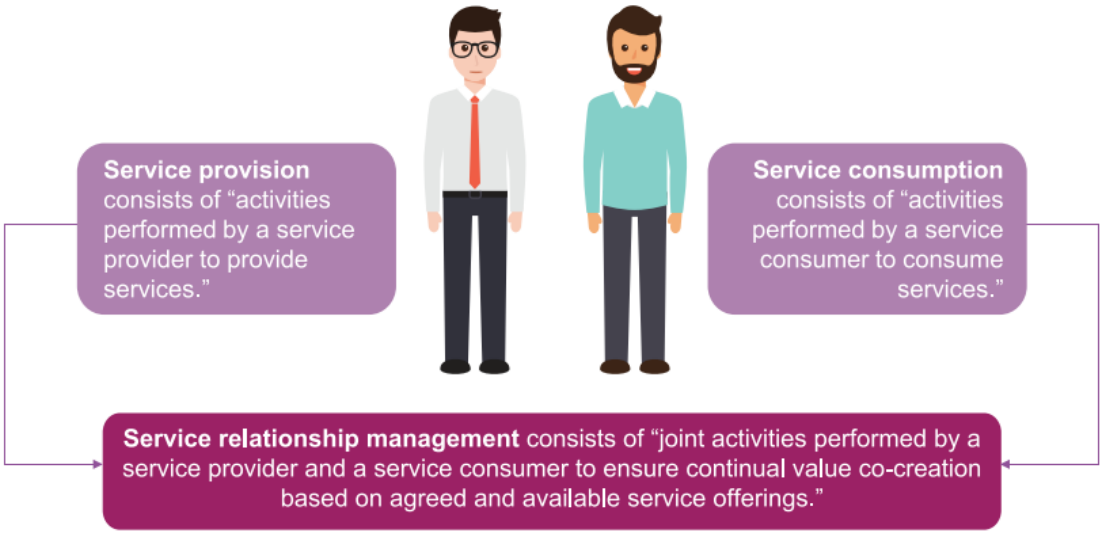
Service relationships are established between two or more organizations to co-create value. In a service relationship, organizations will take on the roles of service providers or service consumers. The two roles are not mutually exclusive, and organizations typically both provide and consume a number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



Organization B is service consumer for **Organization A** and service provider for **Organization C**.

Service Relationship Management

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



Service Provisioning

Service provision includes:

- Management of the provider's resources, configured to deliver the service
- Access to these resources for users
- Fulfilment of the agreed service actions
- Service level management and continual improvement.

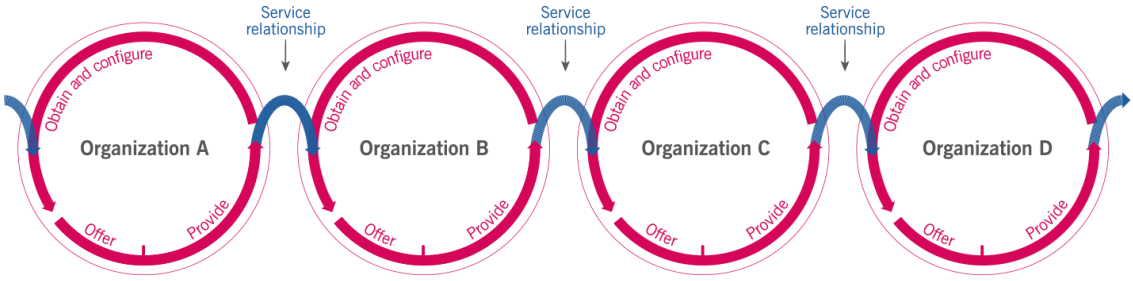
Service Consumption

Service consumption includes:

- Management of the consumer's resources needed to use the service
- Service use actions
- Utilization of the provider's resources
- Request of service actions to fulfill

Service Relationship Model

When service provider deliver services, they either create new resources for service consumers or modify their existing resources. The service consumers can use their new or modified resources to create their own products to fulfill the needs of another target consumer group, and become a service provider. These service relationships and interactions are depicted through the service relationship model.



Value: Outcomes, Costs, and Risks

Services facilitate Outcomes

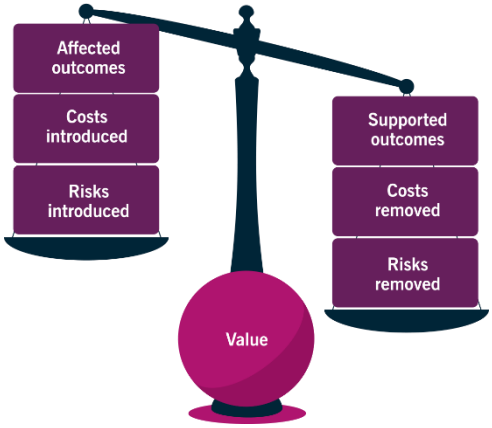
A service is a means of enabling value co-creation by facilitating outcomes that customers want to achieve without the customer having to manage specific costs and risks.

As specified in the definition of service, service providers help the service consumers to achieve outcomes, and in doing so, take on some of the associated risks and costs.

Outcomes, Costs, and Risks

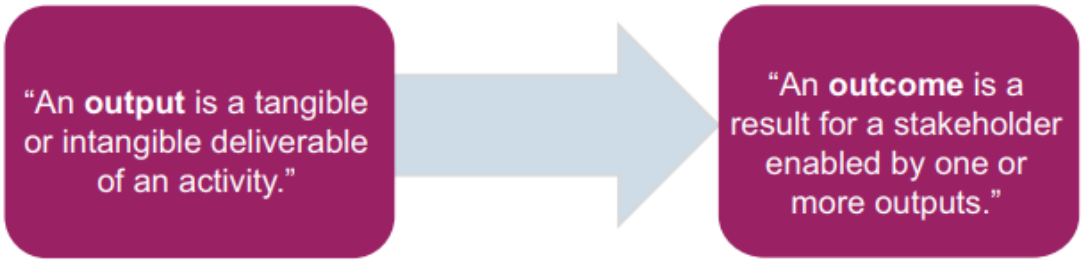
Achieving desired outcomes requires resources (and therefore costs) and are often related to risks.

Also service relationships can introduce new risks and costs, or they can negatively affect some of the anticipated outcomes, while supporting others. Service relationships are perceived as valuable only when they have more positive effects than negative.



Outputs and Outcomes

A service provider produces outputs that help its consumers to achieve certain outcomes.



It is important to understand the difference between outputs and outcomes. For example, an output of a training service is a Course Presentation, which the trainers can use to deliver the training. The outcome of the service is the ability of the participants to pass the related certification exam, after attending the training.

It is important for the service provider to understand the outcomes that the consumer wants to achieve. In some cases, the service provider and consumer work together to define the desired outcomes.

For example, the Development Manager in a training development department may regularly connect with customers to understand the needs for a training product. In other cases, the consumers communicate their expectations clearly, such as when standardized services are offered to a wide consumer group. This is how mobile operators, broadband service providers and transport companies usually operate. In some other cases, service providers can predict or create demand for certain outcomes. For example, in social networks, the service provider introduces some innovative services addressing needs that consumers were not aware of earlier.

Cost

Cost is the amount of money spent on a specific activity or resource.

From the service consumer's perspective, there are two types of costs involved in service relationships:

The costs removed from the consumer by the service may include costs of service provider's staff, technology and other resources.

The costs imposed on the consumer by the service is basically the costs of service consumption. The total cost of consuming a service includes the price charged by the service provider (if applicable), plus other costs such as costs of network utilization, cost of procurement, or cost of training to service provider's employees. This cost is sometimes described as what the consumers have to 'invest' to consume the service.

From the consumer's perspective, both types of cost should be considered to assess the value that the service will create. It is important to understand both types of costs to ensure that the correct decisions are made about the service relationship.

From the provider's perspective, a complete understanding of the cost of service provision is required. Service providers need to ensure that services are delivered within budget constraints and meet the financial expectations of the organization.

Risk

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

From the service consumer's perspective, there are two types of risks:

The risks removed from a consumer by the service may include failure of the consumer's server or unavailability of workforce. In some cases, a service may only reduce a consumer's risks, but the consumer may determine that this reduction is sufficient to support the value proposition.

Examples of the risks imposed on a consumer by the service can be a service provider experiencing a security breach.

The service provider should manage the detailed level of risk on behalf of the consumer based on a balance of what matters most to the consumer and to the provider.

The service consumer contributes to the reduction of risk through:

- Actively participating in the definition of the requirements of the service and the clarification of its required outcomes.
- Clearly communicating the critical success factors and constraints that apply to the service.
- Ensuring the provider has access to the necessary resources of the consumer throughout the service relationship.

Utility and Warranty

The assessment of overall utility and warranty is important to evaluate whether or not a service or service offering will facilitate the desired outcomes for the consumers and create value for them.

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

- Represents what the service does
- Determines whether a service is 'fit for purpose'
- Requires that a service must either support the performance of the consumer or remove constraints from the consumer

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

Represents how the service performs

- Determines whether a service is 'fit for use'
- Requires that a service has defined and agreed conditions that are met
- Ensures the appropriate level of availability, capacity, continuity, and security

Both utility and warranty are important for a service to facilitate its desired outcomes and enable value creation.

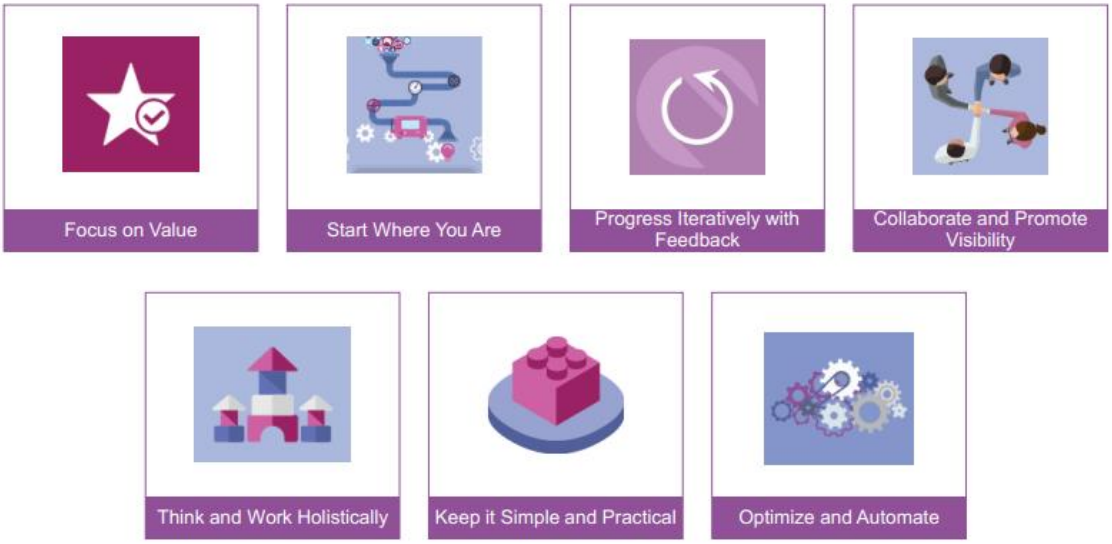
A telecom provider designs its mobile (and internet) phone service to enable its consumers to make phone calls, from wherever they are and whenever they want to (utility). The service provider also needs to make sure that this service works under different kind of situations, ensuring the right level of availability, capacity, continuity and security (warranty). If the consumer frequently experiences disruption in services, such as network failure, the consumer gets dissatisfied and considers to move to another provider. Also, if the service is available constantly (warranty), but the service provider fails to offer generic features, such as free roaming or reasonable data download, the utility of the service is not sufficient. This means that both utility and warranty are equally important to give the consumer a good experience and help create value.

In an organization, generally the development team focuses on creating new functionalities (utility) and the operations team focuses on availability and stability of service (warranty). It is important that both teams should collaborate and communicate to a right level for providing high quality services.

3 The Guiding Principles

The Seven Guiding Principles

The guiding principles defined here represent the core messages of ITIL and of service management in general. These principles provide guidance to the organizations as they adopt a service management approach and adapt ITIL guidance to their own specific needs and situations.



Focus on value

The principle “Focus on Value” aims at creating value for service consumers. To achieve this value, organizations need to tie back the different activities (directly or indirectly) that they do in a logical way.

In other words, an organization can create value for service consumers only by creating value for itself, its customers, and stakeholders. As a direct example of this principle, it may require to re-think on services from the customer perspective, including new customers. An indirect example can be to improve the process of managing changes to standardize the types of changes with less disruption on service improvements visible by the customer

Aspects to Consider

The following aspects can help organizations in creating value:

- Understanding who is a service consumer: Service providers can create the desired value only if they know who will use the service and what will they receive. Therefore, it is essential for them to identify and understand the consumers of their services as well as the others stakeholders involved.
- Knowing the consumer's perspectives about value: Service providers can define the value for consumers based on their specific requirements that keep changing from time to time and considering the different circumstances. Therefore, getting the clear picture of what does value mean for service consumers is the next step for service providers to deliver the desired service. In this direction, service providers can help themselves by having the answers to the following questions:
  - Why do consumers use the services?
  - What will the services do for them?
  - How the services enable them to accomplish their goals?
  - What role do the services play for them considering the cost/financial consequences?
  - What are possible risks for them?
- Improving the customer experience: The success of any product or service depends on the consumers' or customers' experience with the service and the providers. The experience is usually known as Customer Experience. It can be objective and subjective depending on the defined criteria to measure it.

Start Where You Are

The principle "Start Where You Are" focuses on considering what is already available instead of starting from scratch (or reusability). To achieve this, analyzing the existing state is essential to identify what can be helpful in creating the new value.

Organizations often make decisions to remove the old or unsuccessful methods or services to be better and be up-to-date. However, it is not an intelligent decision as it can lead to:

- Removing the existing services, processes, people, and tools that could play a significant role in delivering the new value
- Developing a completely different value compared to the past

- Wasting efforts

It is important not to start over without first considering what is already available to be leveraged. For example, consider an organization need to revise its service management processes due to the fact that cloud services become operational, in parallel to traditional services.

It would be a waste to start from scratch, when different tools and portals with regard to traditional computing are in place. It is optimal to just use what you have and adjust it for cloud services.

Aspects to Consider

When an organization decides to remove the existing services, processes, people, and tools, they should consider the following aspects:

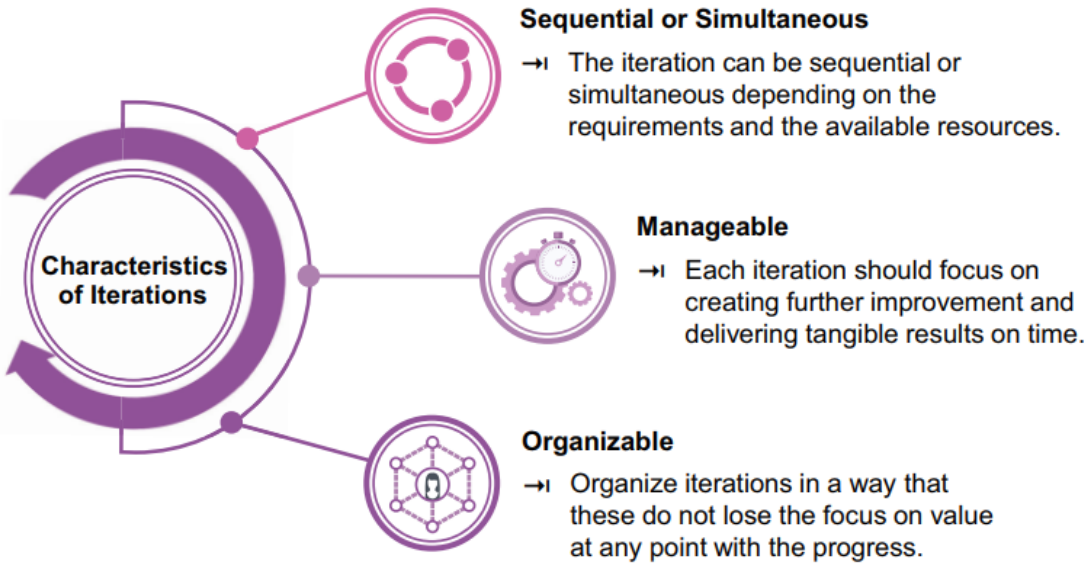
- Assessing where you are: Before start assessing the services and methods, organizations should get the data from the source to avoid any assumptions and make decisions based on accurate information. Usually, the reports that an organization generates are different from reality due to the following two reasons:
  - Inaccurate measurement of some data
  - Unintentional bias or distortion of data in reports Once the required data is in place, start with the assessment to:
  - Know the current state of services and methods.
  - Identify the amount of reusability that can contribute to creating the new value.
  - Avoid assumptions related to timelines, budgets, and quality.
- Measuring the importance of each element: You can assess anything only if you can measure it. Therefore, measurement is a crucial part of this principle. It helps to analyze the data that you get from the source and understand the required impact that each one is playing in the current state. Please be aware that measurement can also lead to inaccuracy. People usually find creative ways to meet the metrics that are defined to measure their performance. Therefore, organizations need to be creative in defining these. They should focus on defining the metrics that directly relate to the outcome

Progress Iteratively With Feedback

The principle “Progress Iteratively With Feedback” focuses on avoiding everything in a go and gathering the timely feedback. To achieve this, breaking down the work into smaller, manageable components is essential to iteratively accomplish the initiative.

To accomplish the initiatives, do not even try to do everything in a go rather work in iterations. Always break down the work into smaller, manageable, logical units. In other words, divide the improvement initiative into smallest possible significant initiatives that require minimal improvement efforts. Organizing the work in such a way helps in timely delivery, having a sharper focus on each effort, and easy maintenance. However, keep on re-evaluating the overall initiative with the progress to ensure the focus on value and reflecting the changes in circumstances, if any.

Iterations also help in gathering early feedback. Getting the feedback before, throughout, and after each iteration ensures everything is progressing as per the expectations, and the focus is on value



Aspects to Consider

Organizations when planning to work on an improvement initiative should consider the following aspects for its success:

- Knowing the role of feedback: When working on an improvement initiative, no improvement iteration can progress in isolation due to changing requirements, such as changes in circumstances and new priorities. These requirements can lead to several modifications and can even eliminate the need of having that iteration. To avoid such situations, always seek feedback before, throughout, and after each iteration and incorporate it to ensure focus on value. Organizations use feedback loops to cope with the changing requirements that help them identify improvement opportunities, risks, and issues.
- working with iterations and feedback together: A continuous cycle of monitoring and improving with each iteration through feedback loops help organizations to:
  - Improve Quality: Working iteratively with feedback loops provides greater flexibility of failing fast and discovering the next steps to success. It helps in responding to the customer and business needs effectively and before time.
  - Make Effective Decisions: Getting feedback at each step helps in the clear understanding of what is the need of doing a given task, who is the customer, how their action can affect the expected results and many more. Such information enables organizations to make effective decisions, meet the customers' needs, and improve the customer experience

Collaborate and Promote Visibility

The principle "Collaborate and Promote Visibility" focuses on removing silos and building trust. To achieve this, the people of an organization need to work together and share information to the greatest degree possible.

Removing Silos

Silos can occur through the behavior of individuals and teams, and also through structural causes. In an organization, silos are usually due to the inability of different business units to collaborate. For example, the processes, systems, documentation, and communications might be designed to cater to the needs of a specific part of an organization only.

Silos occur when people work in isolation, and information sharing is limited to only a few people. When people do not know the details, assumptions and rumors are most likely to occur. As a result, it creates a wall of confusion among individuals or teams. Under such circumstances, resistance to change becomes a major challenge as people start wondering what is changing and how it might impact them.

Remember no work is done in isolation. Including everyone in the initiatives is always a better policy to succeed without any confusion. Enthusiastic contributions help bring creativity and different perspectives. That is why organizations encourage cooperation and collaboration and discourage “silo activity.”

Building Trust

Working together on initiatives in a collaborative way provides more relevance and better understanding that makes everything visible. The visibility helps in making effective decisions, which in turn, increases the chances of long-term success. However, collaborative working is not an easy task as it requires building trust.

Trust within the teams helps them to stay committed and manage things (even the unknown) with confidence. Only if people have trust, they will share information that will help them to learn, grow, and do great work together.

Sharing information helps people to have a better understanding and clear visibility, such as what are the hidden agendas and what is happening and why. The more people know about the initiatives and the associated information, the more they will be willing to support.

Aspects to Consider

Organizations should consider the following aspects when they are planning to work in a collaborative mode:

- Identifying whom to collaborate with: Understanding for whom you are working and what are their perspectives and expectations is essential for successful collaboration.
- Communicating and improving: Service providers should know the extent to which each stakeholder contribute to improving the service at each level.
- Increasing urgency through visibility: Creating the urgency of work is essential to let everyone know about its priority.

Working effectively in collaboration requires identifying, managing, and understanding all the stakeholders involved in the initiative. Therefore, understanding for whom you are working and what are their perspectives and expectations is essential for successful collaboration.

An organization has different stakeholders. However, the first most important stakeholder is the customer due to their large stake. They are critical for service providers as they (customers) can question their (service providers') ability to manage services effectively.

Effective interaction with the customers, considering their importance, is essential for organizations to deliver the expected results. Ineffective interaction with customers can lead to the following situations.

Customers do not need the feel of interacting with service providers after defining the requirements. They do not have any interests in knowing the practices that service providers are following to meet their requirements.

Service providers start feeling that it is difficult to get feedback from the customers. Therefore, delays are just a waste of time.

To avoid the preceding situations and have the expected results in hand, the right level of collaboration is essential between customers, service providers, and other stakeholders.

Communicating and Improving

When working on improvement initiatives, service providers should know the extent to which each stakeholder contribute to improving the service at each level.

Knowing the expectations about the level of contribution requires effective communication with the stakeholders. The type of collaboration to communicate with the stakeholders depends on the service and the relationship between the service provider and the service consumer. Therefore, service providers should define effective ways to engage with them.

Increasing urgency through visibility

Creating the urgency of work is essential to let everyone know about its priority.

Poor visibility to work leads to ineffective decision making that impacts the organization's ability to improve internal capabilities. Under such circumstances where no one knows about the positive impact of the improvement initiative, it becomes difficult to work on it. It is, therefore, essential for the management to support the improvement initiative in every way and make its importance visible to everyone.

The management can perform the following tasks to reinforce what is being done, why it is being done, and how it relates to the stated vision, mission, goals, and objectives of the organization:

- Involving the stakeholders at all levels and addressing their needs
- Providing the appropriate information related to the improvement initiative to employees

"Determining the type, method and frequency of such messaging is one of the central activities related to communication.

Think and Work Holistically

The principle "Think and Work Holistically" focuses on working in an integrated way. To achieve this, the various activities of an organization should focus on the delivery of value.

No work is done in isolation. Likewise, no service, practice, process, department, or supplier can stand alone. Working as a separate entity cannot help them to produce the required outcome. They have to work together in an integrated way to deliver the expected results. Handling the activities as a whole that focus on the delivery of value can only help organizations to produce the required results for its customers, and internal and external stakeholders.

Keep it simple and practical

The principle "Keep it Simple and Practical" focuses on simplifying the complex work methods. To achieve this, identify and eliminate processes, services, actions, or metrics that do not add any value to the outcome.

Organizations can simplify their complex system by reducing the necessary steps to accomplish the objective(s). Always use outcome based thinking to produce practical solutions that deliver results.

Organizations usually try to provide a solution for every exception. In doing so, they ignore the principle “Keep it Simple and Practical” and end up in developing complex work methods that neither maximize outcomes nor minimize cost.

Aspects to Consider

Organizations should consider the following aspects when they are planning to bring simplicity to the system.

- Judging what to keep: Asking what contributes to value creation is the key to analyzing any improvement initiative. It helps to understand how a practice, service, procedure, or process contributes to creating value. One of the ways to achieve this is to start designing the improvement initiative with a simple (uncomplicated) approach and adding the controls, activities, or metrics based on their need.
- Avoiding conflicting objectives: “When designing, managing, or operating practices, be mindful of conflicting objectives. For example, the management of an organization may want to collect a large amount of data to make decisions, whereas the people who must do the record-keeping may want a simpler process that does not require as much data entry. Through the application of this, and the other guiding principles, the organization should agree on a balance between its competing objectives. In this example, this could mean that services should only generate data that will truly provide value to the decisionmaking process, and record keeping should be simplified and automated where possible to maximize value and reduce nonvalue-adding work.”

Optimize and Automate

The principle “Optimize and Automate” focuses on optimizing the work carried out by its human and technical resources. To achieve this, organizations should automate work to the possible extent that requires minimal human intervention.

Optimization helps organizations to maximize the value of work. It helps them to eliminate wasteful and repetitive actions using the right technology. However, having a holistic view of how the various parts of an organization work is essential. The four dimensions to service management can help them in providing the holistic view

considering the various constraints, resource types, and other areas. note: You will learn about the four dimensions in detail in Module 4.

Technology enables organizations to scale up and use their human resources for complex decision-making. Please note that you cannot rely on technology without the required capability of human intervention. Automating everything just for the sake of automation without any underlying reason can lead to huge costs and reduced organizational robustness and resilience.

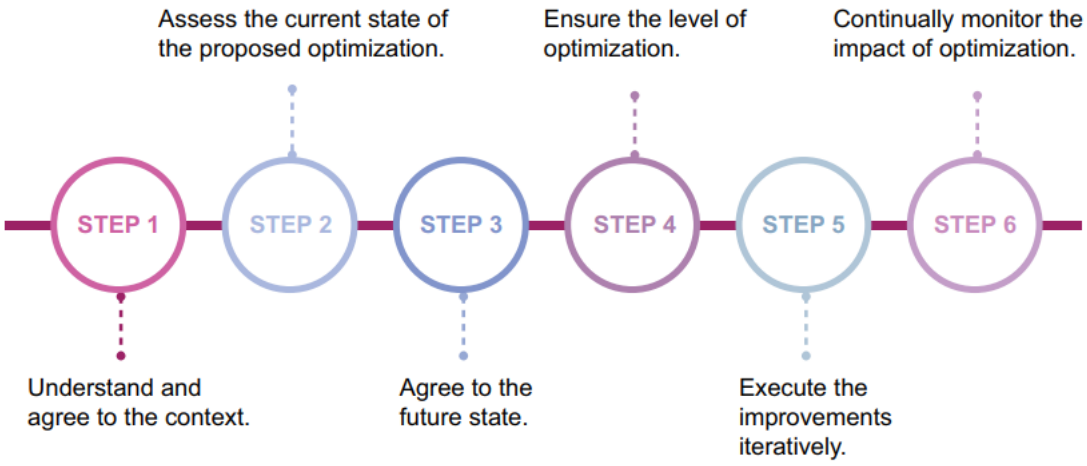
Aspects to Consider

Organizations should consider the following aspects when they are planning optimize the value of work through automation.

- Finding the right path to optimization: No matter whatever practices an organization follow. The path to optimization is same.
- Using automation: Automation helps organizations to save costs, reduce human errors, and enhance employee experience.

Finding the right path to Optimization

Organizations can optimize practices and services in many ways. However, it requires the effective use of the concepts and practices described in ITIL. The practices that organizations follow to optimize work to enhance performance can be specific to ITIL, Lean, DevOps, Kanban and other sources.

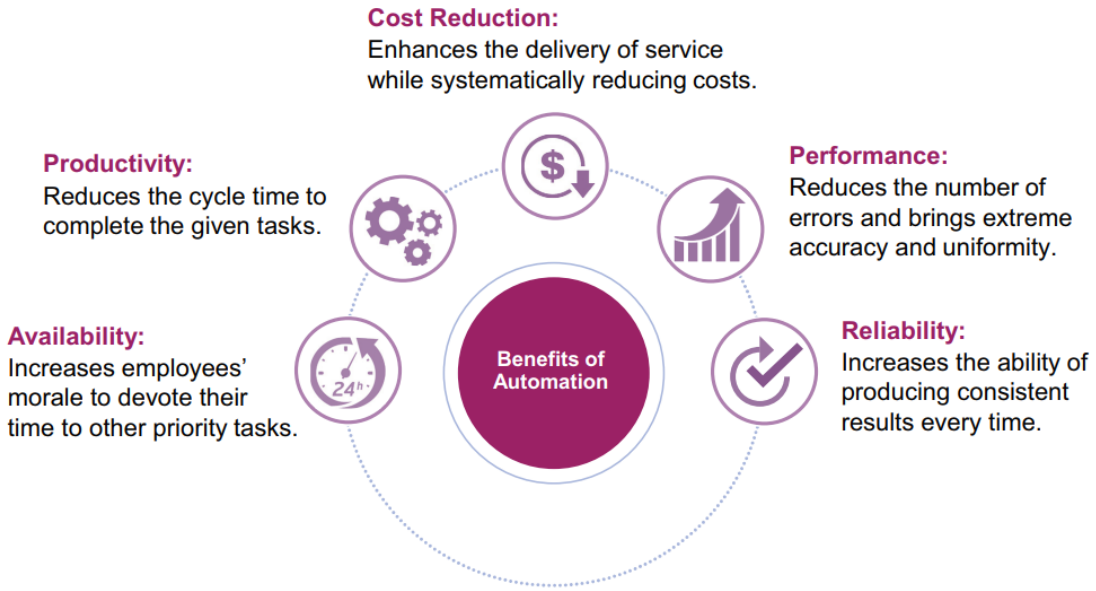


Understanding and agreeing the context in which the proposed optimization exists. This includes agreeing the overall vision and objectives of the organization.

1. Assessing the current state of the proposed optimization to understand where it can be improved and which improvement opportunities are likely to produce the biggest positive impact.
2. Agreeing what the future state and priorities of the organization should be, focusing on simplification and value. This typically also includes standardization of practices and services, which will make it easier to automate or optimize further at a later point.
3. Ensuring the optimization has the appropriate level of stakeholder engagement and commitment.
4. Executing the improvements in an iterative way, using metrics and other feedback to check progress, stay on track and adjust the approach to the optimization as needed.
5. Continually monitoring the impact of optimization to identify opportunities to improve methods of working.

Using Automation

Automation is the process of using technology to maximize the value of work with minimal human intervention.



Organizations can found many opportunities for automation that can help them to save costs, reduce human errors, and enhance employee experience. In simple words, automation is the process of standardizing and streamlining manual actions. As a result, the minimum need for human involvement to stop and evaluate each part of a process leads to greater efficiency.

Applying the Guiding Principles

The following checklist can be used to apply the principle successfully in real life.

Focus on value

- Do the organization have the clear picture of how consumers will use their services?
- Is the staff aware of their customers and the expected customer experience?
- Have you considered the principle “Focus on Value” during operational activities and improvement initiatives?
- Is the organization considering the principle “Focus on Value” in every step of the improvement initiative?

Start Where You Are

- Did you get the required data from the authentic source?
- Have you identified what exists as objectively as possible?
- Have you identified the services, practices, and processes that can be reused to create the new value?
- Do you know the risks associated with reusing the existing services, practices, and processes?
- Do you need to start from scratch to create the new value?

Progress Iteratively With feedback

- Are you progressing iteratively?
- Is the feedback an ongoing process?
- Does each iteration meet the minimum viable requirements?

Collaborate and promote visibility

- Are you collaborating for consensus?
- Are you using the correct mode of communication?
- Are the decisions based on the visible data?

Think and Work Holistically

- Have you identified the complexity of the system?
- Are you collaborating to facilitate thinking and working holistically?
- Have you identified the patterns in the given requirements and interactions between system elements?

Keep it simple and practical

- Does every activity contribute to the creation of value?
- Have you simplified the process to achieve the desired outcome?
- Do you have a minimum number of steps to achieve the objective?
- Are you effectively utilizing everyone's time involved in the process?
- Do you have practices that are easier to follow?
- Are you focusing on quick wins?

Optimize and Automate

- Have you simplified and/or optimized the tasks before trying to automate these?
- Have you defined the metrics?
- Are you using the other guiding principles as well?

Interaction among principles

Guiding principles interact with each other. Therefore, always remember to recognize how they depend on each other. "For example, if an organization is committed to progressing iteratively with feedback, it should also think and work holistically to ensure that each iteration of an improvement includes all the elements necessary to deliver real results."

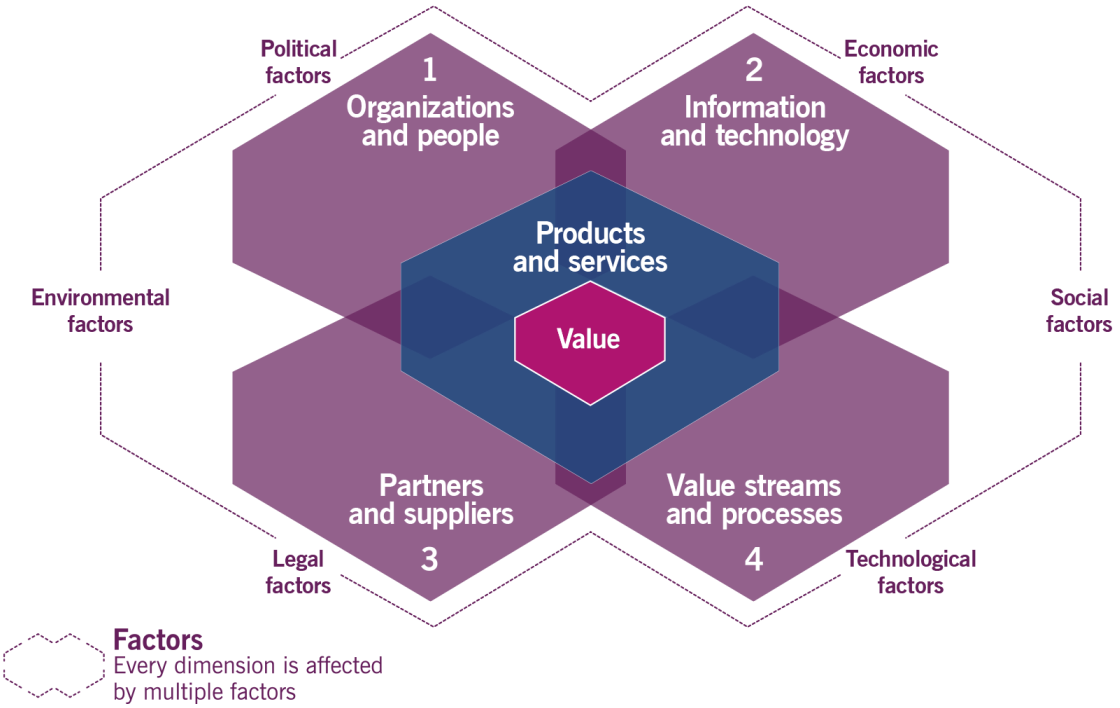
"Similarly, making use of appropriate feedback is key to collaboration, and focusing on what will truly be valuable to the customer makes it easier to keep things simple and practical."

"Organizations should not use just one or two of the principles, but should consider the relevance of each of them and how they apply together. Not all principles will be critical in every situation, but they should all be reviewed on each occasion to determine how appropriate they are. "

4 The Four Dimensions of Service Management

The Four Dimensions

To support a holistic approach to service management, ITIL defines four dimensions that collectively are important for the effective and efficient facilitation of value. The four dimensions are depicted in the figure.



These dimensions do not have sharp boundaries. Therefore, there is a probability of having overlapping dimensions. For example, if members of the service desk team (organizations and people) are being supplied by the third-party service provider, a special consideration must be given to information security and the application of policies and procedures (information and technology).

In addition, you might find these dimensions interacting in unusual ways based on the level of complexity and uncertainty in which an organization operates. If you fail to address any of the dimensions, it can lead to undeliverable services and unmet expectations concerning quality or efficiency.

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

process	"A set of interrelated or interacting activities that transform inputs into outputs. It takes one or more inputs to produce the required output. Processes define the sequence of actions and their dependencies."

The Four Dimensions and Service Value System

All four dimensions should be considered for the efficient working of the entire SVS. These four dimensions represent perspectives which are relevant to the whole Service Value System (SVS), including the service value chain and all ITIL practices.

Organizations and People

Well-defined Organizational structure

Organizations need a well-defined structure to align their people with the overall organizational strategy and operating model. To support the strategy and operating model, people need to have a clear understanding of:

Reporting Lines: An organization should clearly define both the solid and dotted lines of responsibility. The solid lines indicate the responsibility for employee activities, including administering discipline. The dotted lines indicate a more limited level of responsibility and authority over others.

Roles and responsibilities: When an organization defines clear roles and responsibilities, it allows people to know about expectations, such as how to behave, what to accomplish, and how to reach the goal. A clear understanding also enables them to work together with fewer arguments and more creativity.

Systems of Authority: Depending on different types of responsibilities, people in an organization can have three types of authority:

- Line Authority: It is the most basic authority in an organization that allows managers to direct the work of employees. The managers can make some decisions even without consulting anyone. Line authority primarily includes managers who are responsible for achieving the organizational objectives.
- Staff Authority: Staff managers support line managers and other staff personnel by assisting and advising them on improving their effectiveness to perform the required tasks.
- Functional Authority: An organization provides functional authority to an employee or a department to perform a particular job for a period of time. This type of rights

deals with processes, practices, policies, or matters related to activities of other departments.

- **Communication Model**: Communication is the catalyst for a clear understanding of anything as it is all about sharing information from one person to the other. The process that organizations follow for effective communication is known as the communication model. Therefore, effective communication is essential to have a clear understanding of reporting lines, roles and responsibilities, systems of authority, and for other matters.

Healthy Organizational Culture

Culture is the way in which an organization carries out its work that creates shared values and attitudes, which over time becomes the organizational culture.

- Culture also includes the organization's vision, values, norms, systems, symbols, language, assumptions, beliefs, and habits.

You cannot assure the effectiveness of an organization just by having a well-defined structure or system of authority. The organization also needs a supporting culture that is competent enough to meet the organizational objectives. Having such a culture is crucial for any organization and requires leaders to educate and support values that encourage the people to work in desirable ways. You can establish a healthy organizational culture by adopting the ITIL guiding principles.

People and Organizational skills and Competencies

People are a key resource of the organizations and people dimension. It is important to pay attention not only to the skills and competencies of teams or individual members, but also to management and leadership styles and communication and collaboration skills.

People need to work on updating their skills and competencies not only for the organization but also for their growth.

The effectiveness of an organization is positively and directly related to their people's motivation. Therefore, it is essential for organizations to have updated management and leadership styles to keep them motivated to be successful in their business.

In today's era, it is becoming essential for people to understand not only their role and specialization but those of others as well. Therefore, organizations need to keep updating

the communication and collaboration skills to ensure clear transparency among individuals and between the different business processes.

Common Objective

The business objective is the outcome that a business wants to accomplish. Therefore, organizations should ensure whether their people clearly understand it or not.

People are the crucial resource of an organization, and it is essential for them to be on the same stage. If they are not, the organizational effectiveness will suffer. Therefore, they should be clear about their contribution to accomplishing the objective of creating value for the customers, partners, and stakeholders.

Information and Technology

Every business deals with data, which is nothing but the information. In modern times, organizations use technology to manage the vast amount of data. Therefore, this dimensions focuses on two elements, information and technology.

Information

Information Management: Effectively managing the information is the primary way of delivering value to the customers. It is the key output of almost every IT service consumed by business customers. Let us consider the example of one of the services of Human Resources (HR) to understand how they create value for its customers by managing information. They create value by:

- Enabling the organization to access and maintain accurate information about its employees, their employment, and their benefits
- Keeping employees' data confidential by limiting the access to unauthorized parties

Information Exchange: One of the aspects of the information and technology dimension is how to exchange the information between different services and their components. Today, it has become essential to keep optimizing the services considering the several factors, such as availability, reliability, accessibility, timeliness, information accuracy, and information exchange between services. As a result, clearly understanding the information architecture that the services use is crucial.

Challenges of Information Management: The information and technology dimension also focuses on the challenges of managing information. Many regulations exist that

restrict industries or countries from managing data using their standards, such as security and regulatory compliance requirements. These requirements greatly influence the policies and practices that organizations follow to manage information.

Technology

Almost every service today is based on information technology, and an organization can choose to use technology anytime for its services or products. Therefore, they come up with many questions when they choose to use technology.

Some of the questions that organizations can ask.

- Is the technology compatible with the existing architecture of the organization and its customer(s)? Will the technology products used by the organization and its stakeholders work together? How do the emerging technologies influence the service and the organization?
- How do the emerging technologies influence the service and the organization? Are there any regulatory or other compliance issues with the organization's policies and information security controls, or those of its customers?
- Will the technology continue to be viable in the foreseeable future?
- Is the organization willing to accept the risk of using aging technology, or of embracing emerging or unproven technology?
- Does the technology align with the strategy of the service provider or its service consumers?
- Does the organization have the required skills to support and maintain the technology?
- Does the technology have sufficient automation capabilities to ensure its efficient development, deployment, and operations?
- Does the technology offer additional capabilities that might leverage other products or services?
- Does the technology introduce new risks or constraints to the organization?

Factors affecting technology

An organization should consider many factors to choose the right technologies, such as Organizational Culture and Nature of Business.

Partners and suppliers

The partners and suppliers dimension includes an organization's relationships with other organizations.

- Almost every organization and every service depends to some extent on services provided by other organizations. Therefore, they work with partners and suppliers to achieve the organizational objective.
- Partners and suppliers can be involved in every phase of product development or service management, such as design, development, deployment, delivery, support, and continual improvement.
- Maintaining healthy relationships with partners and suppliers is, therefore, essential for organizations to deliver the required value to the customers.

Organizational relationships with partners and suppliers

Organizations work with partners or suppliers through contracts and other agreements. This process includes various levels of integration and formality.

Addressing partners and suppliers

One of the methods to address partners and suppliers is Service Integration and Management (SIAM). It ensures proper coordination of service relationships using a specially established integrator. An organization can choose to delegate service integration and management to a trusted partner.

Suppliers and Impact on Organizational strategy

When dealing with suppliers, many factors can impact the overall strategy of the organization, such as:

- Strategic Focus: Some organizations prefer to focus on their core competencies and outsource non-core supporting functions to third parties. Others want to be self-sufficient as possible and prefer to have full control over all important functions.
- Corporate Culture: Changing the long-standing cultural bias is difficult due to a historical preference for one approach over another.
- Resource Scarcity: The lack of resources or required skill sets is a big problem for service providers. It stops them from acquiring anything even without engaging with the partners.

- Cost Concerns: The prime factor that affects decision-making is cost. Therefore, service providers can go with sourcing a particular requirement from suppliers if they find it to be a more economical deal.
- Subject Matter Expertise: Service providers prefer to go with the supplier who is having the expertise in the required field. Therefore, they do not try creating in-house subject matter expertise.
- External Constraints: Government regulations or policies, industry codes-of-conduct, and social, political, or legal constraints also impact the supplier strategy.
- Demand patterns: The demand for services is seasonal and different in different situations. It has a high degree of variability and the tendency to impact the external service providers that organizations use to deal with the variable demand.

Value streams and processes

- The dimension value streams and processes focuses on the integration and coordination of both the SVS in general and to specific products and services. It defines the activities, workflows, controls and procedures needed to achieve agreed objectives.
- In other words, the dimension focuses on the efficient organization of the various activities to deliver value to stakeholders. Therefore, there is a need for an operating model that effectively organizes the key activities to manage products and services.
- ITIL provides service providers with such a model known as the ITIL service value chain. This model can follow different patterns, and the patterns within the value chain operation are called value streams.

Value Streams

A value stream is a series of steps that an organization uses to create and deliver products and services to a service consumers. A value stream is a combination of the organization's value chain activities.

Characteristics of value streams

- **Improved performance**: Value streams help improve the overall performance of an organization. Therefore, it is essential to identify and understand the various value streams of the organization.
- **Better understanding**: Organizations should structure their service and product portfolios based on value streams as it provides two primary benefits. First, it allows having a clear understanding of what value does an organization deliver and how. Second, it helps to make continual service improvements.
- **Increased productivity**: Value streams help organizations to analyze how they perform their work. The analysis enables them to find waste in their current workflow, such as any obstacles and non-value adding activities, and increase value-adding activities.
- **Continual Improvement**: In today's era of varying demands, value streams should be continually improved or refined to meet the organizational strategy and the objective in an optimal way

Processes

A process is a set of interrelated or interacting activities that transform inputs into outputs. Processes define the sequence of actions and their dependencies. A process takes one or more defined inputs and turns them into defined outputs. Processes are usually detailed in procedures, which outline who is involved in the process, and work instructions, which explain how they are carried out.

Processes describe what should be done to accomplish the

Organizational objective, and improve productivity within and across

Organizations. These processes indicate the detailed procedure, including the work instructions and the people who will be involved.

Structure of services

The same structure of the value chain, value streams, processes, procedures, and work instructions applies to the services. Therefore, organizations should consider the following questions when creating, delivering, and improving a service.

- What is the generic delivery model for the service, and how does the service work?
- What are the value streams involved in delivering the agreed outputs of the service?
- Who, or what performs the required service actions? The answers to the preceding question will vary depending on the nature and architecture of the service.

External factors and the PESTLE Model

Service providers do not work in isolation. Therefore, external factors can influence the way they work. The PESTLE model helps analyze these factors.

- Political factors are about how the government can impact an organization and the way they work.
- Economic factors impact the way an organization does business and profitability.
- Social factors impact the customers' needs due to changes in the social environment.
- Technological factors impact the development, distribution, manufacturing, and logistics due to changes in digital or mobile technology, automation, and research and development.
- Legal factors focus on how organizations are allowed to operate within territories.
- Environmental factors are becoming important these days due to the rise of Corporate Sustainability Responsibility (CSR) and ecological aspects.

PESTLE Model and the four dimensions

The PESTLE factors greatly impact the way organizations configure their resources and address the four dimensions. The SVS is often unable to control these factors.

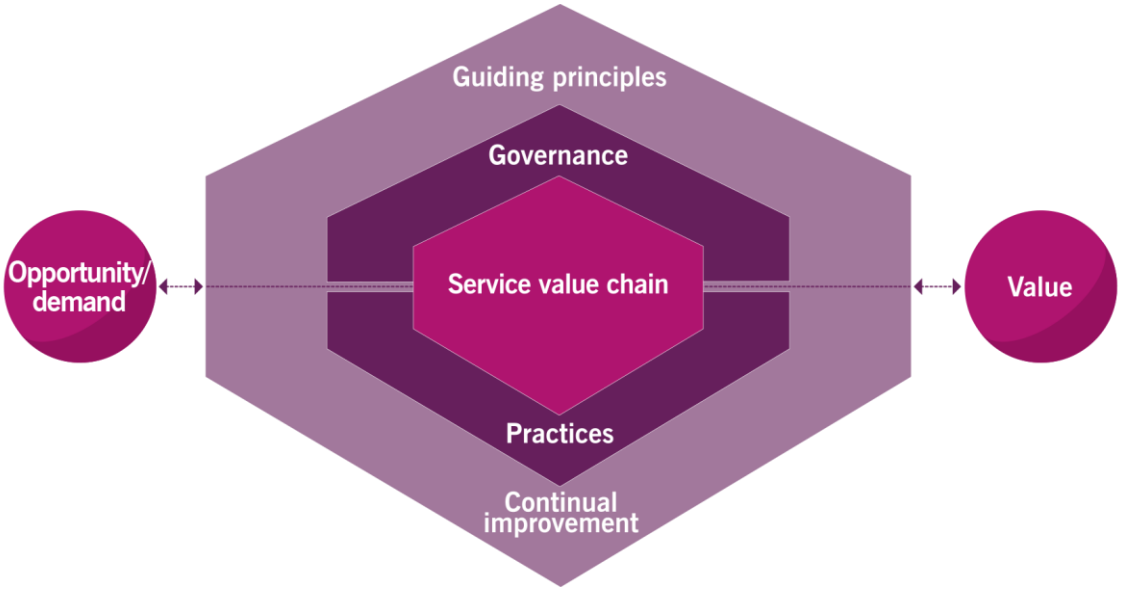
5 The ITIL Service Value System

Purpose of service value system

The ITIL Service Value System (SVS) explains how the components and activities of the organization work together as a system to enable value creation.

- Each organization's SVS interfaces with other organizations, forming an ecosystem that can in turn facilitate value for those organizations, their customers, and other stakeholders.
- The purpose of the SVS is to ensure that the organization constantly co-creates value with all stakeholders through the use and management of products and services.
- In order to function properly, a service management needs to work as a system. The ITIL SVS describes the inputs to this system, the elements of this system, and the outputs (achievement of organizational objectives and value for the organization).

The ITIL SVS provides the means to achieve organizational agility and resilience. Organizational agility is required to support internal changes, and organizational resilience is required to thrive in changing external circumstances.



The figure shows the structure of the service value system. The left side of the figure shows inputs (opportunity/demand) feeding into the SVS and the right side of the figure

shows output created for the organization, its customers, and other stakeholders. The middle part of the figure shows the components of the ITIL SVS.

The main inputs to the SVS are opportunity and demand. Opportunities refer to options or possibilities that can add value for customers and stakeholders or otherwise help the organization to improve. Demand refers to the need for products and services among consumers. Opportunity and demand generate activities within the ITIL SVS, which lead to the creation of value. This value is the output/outcome of ITIL SVS. The value represents the perceived benefits, usefulness and importance of something. The ITIL SVS enables the creation of many different types of value for a wide group of stakeholders.

The ITIL SVS includes the following components:

- **Guiding principles**: Refer to recommendations that guide organizations in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure.
- **Governance**: Refers to the means by which an organization is directed and controlled.
- **Service value chain**: Refers to a set of activities performed by an organization to deliver a valuable product or services its consumers.
- **Practices**: Refer to a set of organizational resources designed to perform work or accomplish an objective.
- **Continual improvement**: Refer to a recurring activity performed at all levels to ensure that an organization’s performance continually meets stakeholders’ expectations.

Overcoming Organizational silos

The biggest challenge for organizations today is the presence of organizational silos.

Organizational silos:

- Prevents easy access to information & expertise
- Reduces efficiency
- Increases costs
- Makes communication and collaboration difficult
- Makes organizations unable to quickly take advantage of opportunities
- Makes decision making ineffective due to limited visibility and hidden agendas

Avoid practices as silos.

The ITIL SVS has been specifically designed to enable flexibility and discourage siloed working.

The ITIL SVS specifies how the components and activities of the organization work together as a system to enable value creation. These components and activities can be configured and reconfigured in multiple combinations in a flexible way as circumstances change. However, this configuration and reconfiguration requires the integration and coordination of activities, practices, teams, authorities, and responsibilities and all parties to be truly effective.

When trying to work effectively and efficiently with a shared vision, or to become more agile and resilient, the biggest challenge that an organization faces is the presence of organizational silos.

Silos are resistant to change and prevent easy access to the information and specialized expertise that exists across the organization. This in turn reduces efficiency and increases cost and risk. Silos make it more difficult for communication or collaboration to occur across different groups.

A siloed organization cannot act quickly to take advantage of opportunities or optimize the use of resources across the organization. It is generally not able to make effective decisions about changes, due to limited visibility and hidden agendas.

In some organizations, practices can also become silos. Various organizations implement practices like organizational change management or incident management without clear interfaces with other practices which leads to inefficiencies. The exchange

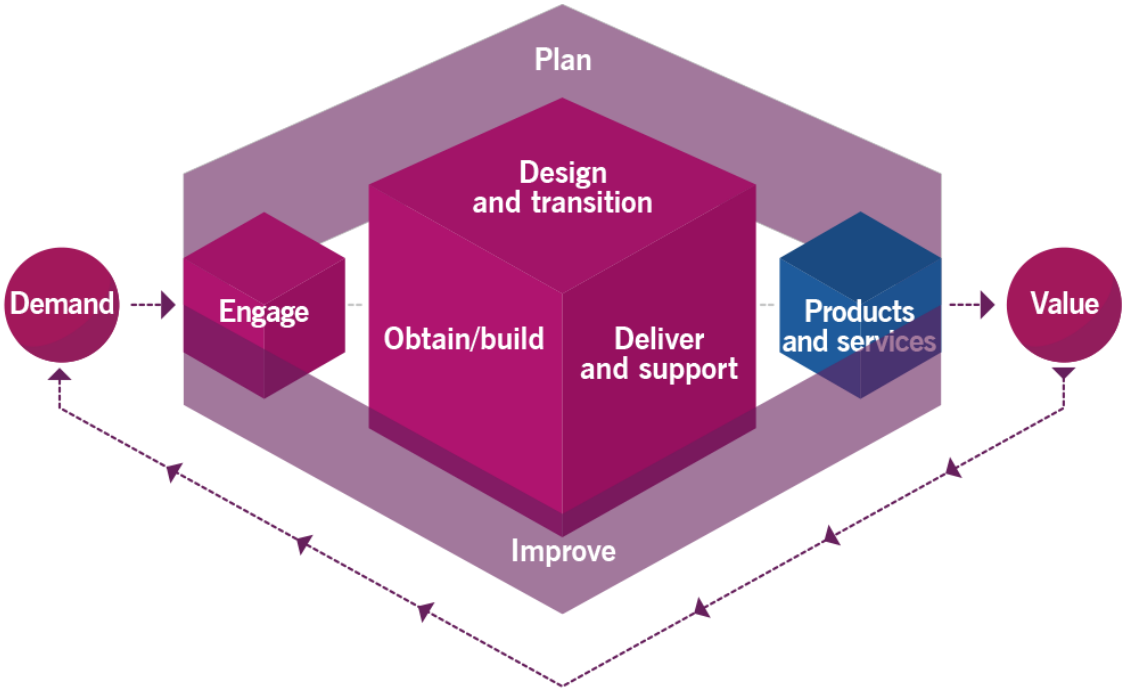
of information between practices should be triggered at key points in the workflow, and is essential to the proper functioning of the organization.

The ITIL SVS has been specifically designed to enable flexibility and discourage siloed working. “The service value chain activities and the practices in the SVS do not form a fixed, rigid structure. Rather, they can be combined in multiple value streams to address the needs of the organization in a variety of scenarios.” Organizations should be able to define and redefine their value streams in a flexible, yet safe and efficient manner with ongoing improvement built in.

Furthermore the scope of the SVS can be a whole organization or a smaller subset of that organization. To achieve the maximum value from the SVS and to properly address the issue of organizational silos, it is preferable to include in the scope the whole organization rather than a subset.

The Service Value Chain

The service value chain is the central element of SVS.



The service value chain is an operating model that defines the key activities required to respond to demand and enable value creation through the formation and management of products and services.

The ITIL service value chain includes six value chain activities that lead to the creation of products and services and, in turn, value.

The six value chain activities are:

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

The value chain activities represent the steps an organization takes to create value. Each activity contributes to the value chain by converting specific inputs into outputs. The inputs may be demands from outside the value chain or may be the outputs of other activities. In this way, activities interact with each other wherein each activity receives and provides triggers for further actions to be taken.

To convert inputs into outputs, the value chain activities take different combinations of ITIL practices. Each activity may use internal or third party resources, skills, and competencies from one or more practices. “For example, the engage value chain activity might draw upon a number of practices including supplier management, service desk management, relationship management and service request management to respond to new demands for products and services, decisions, or information from various stakeholders.”

Value Streams

A value stream is a series of steps that an organization takes to create and deliver products and services to a consumer. A value stream is a combination of the organization’s value chain activities.

Service value streams are specific combinations of activities and practices where each value stream is designed for a particular scenario. Once designed, value streams should be subjected to continual improvement.

For example, a value stream might be created for a situation where a user of a service needs an incident to be resolved. The value stream created for this scenario will provide a complete guide of the activities, practices, and roles involved in resolving the issue.

Example value chain, practices, and value streams

A mobile application development company has a value chain, enabling the full cycle of application development and management, from business analysis to development, release, and support. The company has developed a number of practices, supported with specialised resources and techniques:

- Business analysis
- Development
- Testing
- Release and deployment
- Support

Although the high-level steps are universal, different products and clients need different streams of work. For example:

- The development of a new application for a new client starts with initial engagement (pre-sale), proceeds to prototyping, agreements, development, and eventually to release and support.
- Changing an existing app to meet new requirements of existing clients does not include pre-sale and involves development, testing, and support in a different way.
- Fixing an error in a live application may be initiated in support, proceed with rolling back to a previous stable version (release), then to development, testing, and release of a fix.
- Experiments with new or existing apps to expand the target audience may start with innovation planning and prototyping, then proceed to development, and eventually to a pilot release for a limited group of users to test their perception of the changes made.

These are examples of value streams: they combine practices and value chain activities in various ways to improve products and services and increase potential value for the consumers and the organization."

The value chain activities and define the purpose, inputs, outputs, and value for each activity.

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

Output	to
Strategic, tactical, and operational plans	All
● Portfolio decisions ● Architectures and policies	Design and transition
Improvement opportunities	Improve
● Product and service portfolio ● Contract and agreement requirements	Engage

Improve: to ensure continual improvement of products, services, and practices across all value chain activities and the four dimensions of service management.

Output	to
Improvement initiatives and plans	All
Improvement status reports	All value chain activities
Value chain performance information	Plan and the governing body
Contract and agreement requirements	Engage
Service performance information	Design and transition

Engage: to provide a good understanding of stakeholder needs, transparency, and continual engagement and good relationships with all stakeholders.

Output	to
Consolidated demands and opportunities	Plan
● Product and service requirements ● User support tasks	Design and transition
Improvement opportunities and stakeholders' feedback	Improve
Change or project initiation requests	Obtain/build
Contracts and agreements with external and internal suppliers and partners	Obtain/build, Design and transition
Knowledge and information about third party service components	All value chain activities
Service performance reports	Customers

Design and Transition: to ensure that products and services continually meet stakeholder expectations for quality, costs, and time-to-market.

Output	to
Contract and agreement	Engage
Requirements and specifications	Obtain/build
New and changed products and services	Deliver and support
Performance information and improvement opportunities	Improve
Knowledge and Information about new and changed products and services	All value chain activities

Obtain/Build: to ensure that service components are available when and where they are needed, and meet agreed specifications.

Output	to
Service components	● Deliver and support ● Design and transition
Contract and agreement requirements	Engage
Performance information and improvement opportunities	Improve
Information about new and changed service components	All value chain activities

Deliver and Support: to ensure that services are delivered and supported according to agreed specifications and stakeholders' expectations.

Output	to
Services delivered	Customers and users
Information on the completion of user support tasks Contract and agreement requirements	Engage
Product and service performance information	Engage, Improve
Improvement opportunities	Improve
Change requests	Obtain/build
Service performance information	Design and transition

6 Continual Improvement

Key Terms Covered in the Module

Change management	"The process responsible for controlling the lifecycle of all changes, enabling beneficial changes to be made with minimum disruption to IT services".
Continual improvement	"A continual improvement process, also often called a continuous improvement process, is an ongoing effort to improve products services, or processes".
Configuration item	"Any component or other service asset that needs to be managed in order to deliver an IT service. Information about each configuration item is recorded in a configuration record within the configuration management system and is maintained throughout its lifecycle by service asset and configuration management. They are under the control of change management. They typically include IT services hardware, software, buildings, people, and formal documentation such as process documentation and service level agreements".
Critical Success Factor (CSF)	"A management term used for an element that is necessary for an organization or project to achieve its mission".
gap analysis	"A method of assessing the differences in performance between a business' information systems to determine whether business requirements are being met and, if not, what steps should be taken to ensure they are met successfully".
key performance Indicator (kpl)	"A metric that is used to help manage an IT service, process, plan project, or other activity. KPIs are used to measure the achievement of critical success factors. Many metrics may be measured, but only the most important of these are defined as KPIs and are used to actively manage and report on the process, IT service, or activity. They should be selected to ensure that efficiency, effectiveness, and cost effectiveness are all managed".
knowledge management	"This process is responsible for sharing perspectives, ideas, experience, and information, and for ensuring that these are available in the right place and at the right time. It enables informed decisions, and improves efficiency by reducing the need to rediscover knowledge".

Continual Improvement

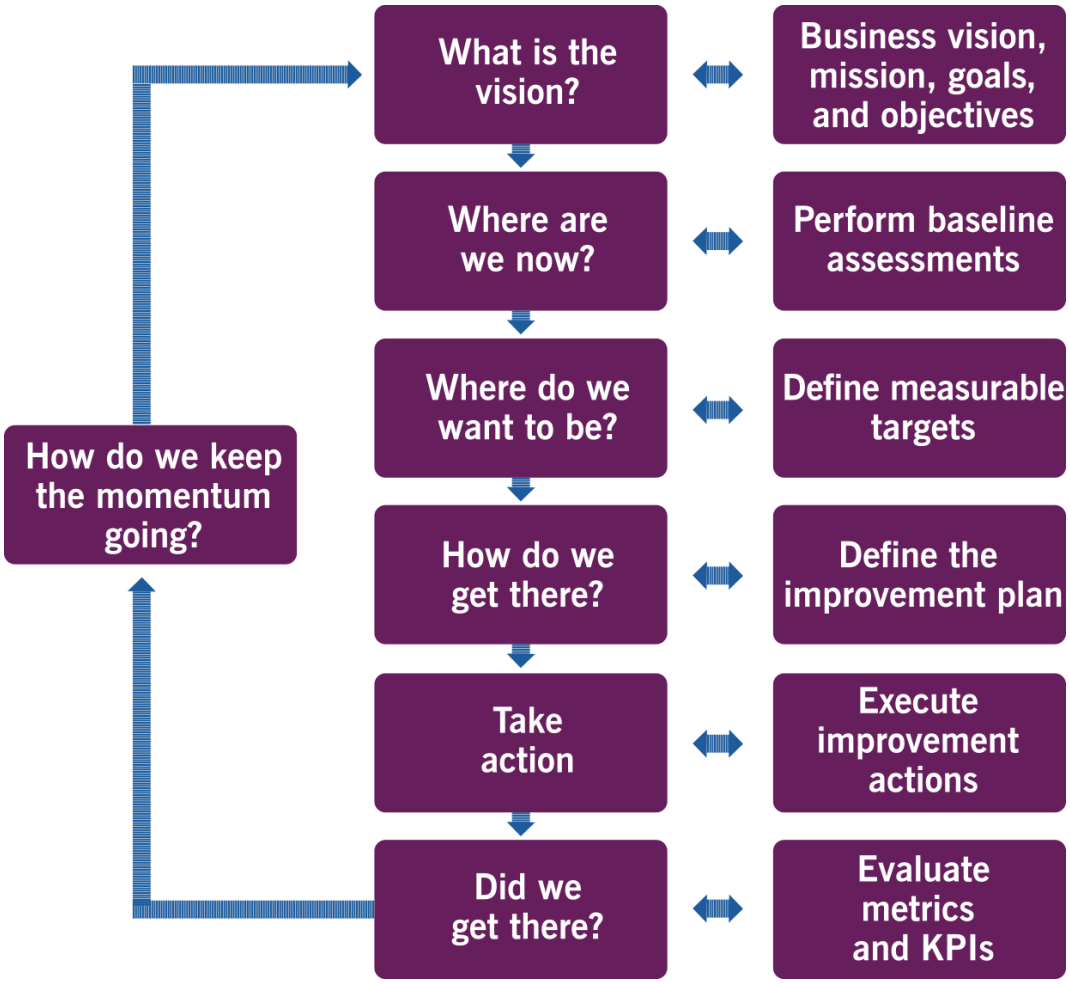
Continual improvement takes place in all areas and at all levels of the organization - from strategic to operational. Continual improvement is important for an organization for various reasons, including:

- The business environment and customer preferences for services change, and the service provider must stay aligned with changing business requirements.
- The technology landscape continues to change, and if an organization is not taking advantage of evolving technology, their services will soon become obsolete.
- Services provided by the organization must continually be reviewed and updated for improvement opportunities, otherwise they fall out of alignment and have little value.

To maximize the effectiveness of services, each person who contributes to a service should keep continual improvement in mind and should always look for opportunities to improve.

The continual improvement model applies to the SVS as a whole, as well as to all of the organization’s products, services, service components, and relationships.

The Continual Improvement Model



The ITIL SVS includes the continual improvement model, which can be applied to any type of improvement, from high level organizational changes to individual services and configuration items.

It is important to remember that the scope and details of each step of the model will vary significantly based on the subject and the type of improvement. However, this model should be recognized as a workflow which can be used as a high-level reminder of a sound thought process to ensure that improvements are properly managed. The flow seeks to ensure that improvements are linked to the organization's goals, properly prioritized, and improvement actions produce sustainable results.

You should always apply logic and common sense when using the continual improvement model. The steps do not need to be carried out in a linear fashion, and it may be necessary to re-evaluate and return to a previous step at some point.

Step 1: What is the vision?

This step focuses on two key areas:

- The organization's vision and objectives need to be translated for the specific business unit, department, team, or individual, so that the context, objectives, and boundaries for any improvement initiative are understood.
- A high-level vision for the planned improvement needs to be created.
- If this step is skipped, improvements might not be optimized for the whole organization.

The first step of the continual improvement model is to define the vision of the initiative. It provides context for all subsequent decisions and links individual actions to the organization's vision.

- The work within this step should ensure the following:
- The high-level direction has been properly understood.
- The planned improvement initiative in this context is described and understood.
- The stakeholders and their roles have been understood.
- The expected value to be realized is understood and agreed.
- The role of the person or team responsible for carrying out the planned improvement initiative is clear in relation to achieving the organization's vision.

If this step is skipped, improvements might only be optimized for the people or teams involved rather than the whole organization, or nonvalue-add activities might become the sole focus of improvements.

Step 2: Where are we now?

- A key element of this step is a current state assessment.
- Current state assessment includes:
  - Assessment of Existing Services
  - Understanding of Organizational Culture
- If this step is skipped, the current state will not be understood and there will not be an objective baseline measurement.

The success of an improvement initiative depends on a clear and accurate understanding of the starting point and the impact of the initiative. An improvement can be thought of as a journey from Point A to Point B, and this step defines what Point A looks like.

A key element of this step is a current state assessment. The current state assessment includes the assessment of existing services, such as the users' perception of value received, the processes and procedures involved, and/or the capabilities of the available technological solutions. It also includes the understanding of the organization's culture to decide what level of organizational change management is required.

If you skip this step, you will not be able to understand the current state and locate the objective baseline measurement. Therefore, it will be difficult to track and measure the effectiveness of the improvement activities.

Step 3: Where do we want to be?

- This step outlines what Point B, the target state for the next step of the journey, should look like.
- A journey can't be mapped out if the destination is not clear.
- If this step is skipped, the target state will remain unclear.

Similar to Step 2 that describes Point A on the improvement journey, this step outlines what Point B should look like. Based on the result of the first two steps, a gap analysis is performed that evaluates the scope and nature of the distance to be travelled from the starting point to the achievement of the initiative's vision.

This step should define one or more prioritized actions to complete the vision for the improvement, based on what is known at the starting point. Improvement opportunities can be identified and prioritized based on the gap analysis, and improvement objectives can be set, along with Critical Success Factors (CSFs) and Key Performance Indicators (KPIs).

If this step is skipped, the target state will remain unclear. This implies that it will be difficult to prepare a satisfactory explanation of what key stakeholders stand to gain from the improvement initiative, which may result in low support or even pushback.

Step 4: how do we get there?

- In this step, a plan for addressing the challenges is created as the start and end points of the improvement journey are identified in the previous two steps
- The best route may not be clear, sometimes it is necessary to design experiments and test options.
- If this step is skipped, the execution of the improvement is likely to flounder, and fail to achieve what is required of it.

Based on the previous two steps, the start and end points of the improvement journey have been defined. This implies that a specific route can be agreed upon. Depending on the current and target states and combining the knowledge with subject matter expertise, a plan for addressing the challenges is created in this step.

In this step, the most effective approach to execute the improvement may not be clear, but it will enable you to design experiments that will test which options have the most potential.

Even if the approach or path for improvement is clear, it will be beneficial to carry out the work in a series of iterations. Each iteration will move the improvement forward and enable you to check the progress, reevaluate the approach, and change the direction if required.

Step 5: take action

- In this step, the plan for the improvement is acted upon.
- ITIL practices that are important to achieve success in this step are:

In this step, the plan for taking the action for the improvement is created. It may involve a traditional waterfall-style approach, but it will be more appropriate to follow the Agile approach.

Improvements may take place as part of a big initiative that makes a lot of change or as part of small but significant initiatives. Even if the path to complete the improvement seemed clear when it was planned, it is important to remain open to change throughout the approach. Achieving the desired results is the objective, not rigid adherence to one view of how to proceed.

During the improvement journey, you need to be continual focus on measuring progress towards the vision and managing risks, as well as ensuring visibility and overall awareness of the initiative.

After this step is complete, the work will be at the end point of the journey, resulting in a new current state.

Step 6: did we get there?

This step involves checking the destination of the improvement journey to ensure that the desired point has been reached.

To validate success:

- Check and confirm the progress and the value for each iteration
- Take additional actions, often triggers a new iteration if not met,
- If this step is skipped, it is difficult to ensure whether the desired or promised outcomes were actually achieved.

This step involves ensuring that the desired point has been reached by checking the destination of the improvement journey.

The path to the improvement journey is filled with various obstacles, so success must be validated. For each iteration of the improvement initiative, both the progress and the value need to be verified and confirmed. If the desired result is not achieved, additional actions are taken.

If this step is skipped, it is difficult to ensure whether the desired or promised outcomes were actually achieved, and any lessons from this iteration, which would support a course correction if needed, will be lost.

Step 7: how do we keep the momentum going?

- The focus of this step is to market the successes and reinforce the newly introduced methods.
- This ensures that the progress made will not be lost and to build support and momentum for the next improvements.
- If this step is skipped, then it is likely that improvements will remain isolated, independent initiatives and any progress made may be lost again over time.

To embed the changes in the organization and ensure the improvements and changed behaviours are not at risk of reversion, the organizational change management and knowledge management practices should be used.

Leaders and managers should help the teams to integrate new work methods into their daily work and institutionalize new behaviours. If the expected results of the improvement were not achieved, stakeholders need to be informed of the reasons for the failure of the initiative.

Relationship between Continual Improvement and Guiding Principles

	focus on value	Start where you are	Progress iteratively with feedback	Collaborate and promote visibility	Think and work holistically	Keep it simple and practical	Optimize and automate
What is the vision?	p			P	P		
Where are we now		P		P			
Where do we want to be?			P		P	P	P
How do we get there?			P	P	P	P	
Take action	P		P	P			
Did we get there?	P			P	P		
How do we keep the momentum going?	P			P	P		P

An organization may significantly benefit from applying the ITIL guiding principles by following the continual improvement model. These principles are applicable to each step of continual improvement initiative. However, some of the ITIL guiding principles are particularly applicable to specific steps of the continual improvement model. By following these principles at each step of a continual improvement, organizations will increase the chances for success of the steps. This in turn leads to the success of the overall improvement initiative. The given table outlines which steps of the continual improvement model are particularly relevant to which of the guiding principles.

7 The ITIL Practices

In ITIL, a management practice is a set of organizational resources designed for performing work or accomplishing an objective. ITIL 4 includes 14 general management practices, 17 service management practices, and three technical management practices.

General management practices	Service management practices	Technical management practices
• Architecture management	• Availability management	• **Deployment management**
• **Continual improvement**	• Business analysis	• Infrastructure and platform management
• **Information security Management**	• Capacity and performance management	• 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**	
• **Relationship management**	• **Release management**	
• Risk management	• Service catalogue management	
• Strategy management	• **Service configuration management**	
• **Supplier management**	• Service continuity management	
• Workforce and talent management	• Service design	
• Service financial management	• **Service desk**	
	• **Service level management**	
	• **Service request management**	
	• Service validation and testing	

The scope of the ITIL Foundation syllabus is limited to understanding the purpose of 15 most commonly used practices and comprehend the following 7 practices in detail:

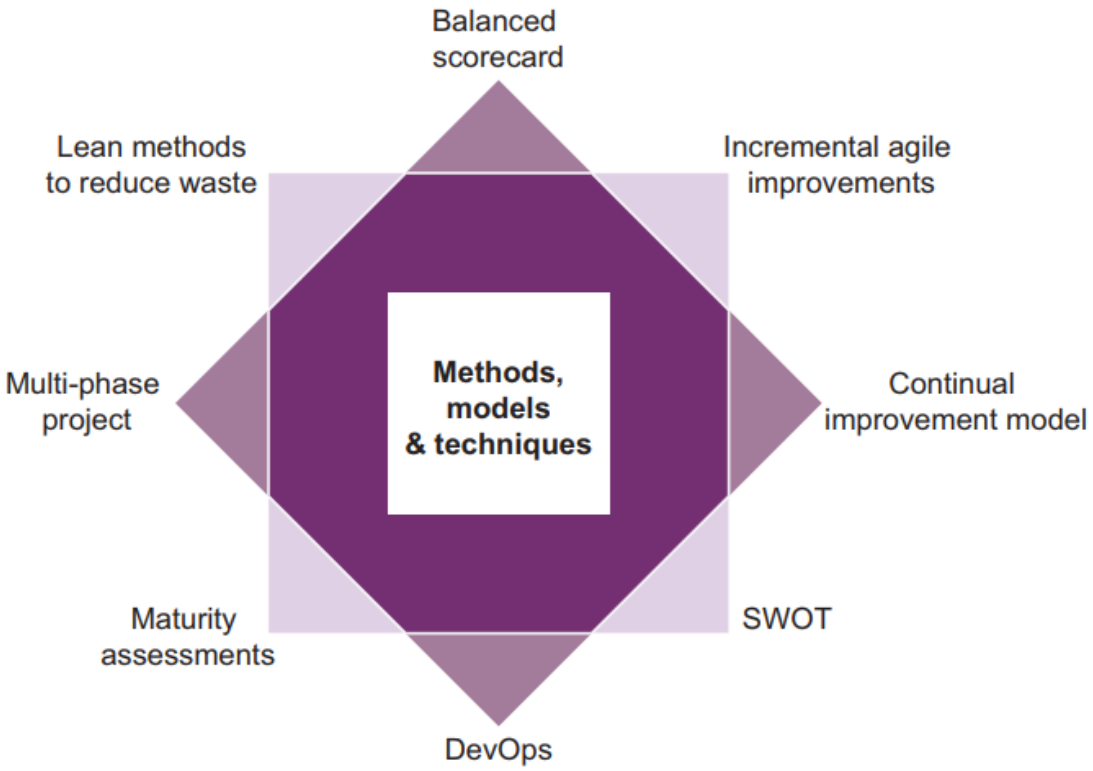
- Continual improvement
- Change control
- Incident management
- Problem management
- Service request management
- Service desk
- Service level management

Key Terms Covered in the Module

Availability	The ability of an IT service or other configuration item to perform its agreed function when required.
Change	The addition, modification, or removal of anything that could have a direct or indirect effect on services.
Incident	An unplanned interruption to a service, or reduction in the quality of a service.
problem	A cause, or potential cause, of one or more incidents.
known error	A problem that has been analyzed and has not been resolved.
workaround	A solution that reduces or eliminates the impact of an incident or problem for which a full resolution is not yet available. Some workarounds reduce the likelihood of incidents.
Event	An event can be defined as any change of state that has significance for the management of a configuration item (CI) or IT service. Events are typically recognized through notifications created by an IT service, CI or monitoring tool.
IT asset	Any valuable component that can contribute to delivery of an IT product or service.

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 identification and improvement of services, service components, practices, or any element involved in the efficient and effective management of products and services.



The scope of the continual improvement practice includes the development of improvement-related methods and techniques and the propagation of a continual improvement culture across the organization in alignment with the organization's overall strategy. Different types of improvements may require consideration for different improvement methods. For example, some improvement initiatives may be best implemented as a multi-phase project, while others may be more appropriate as a single quick effort.

The continual improvement model, a component of ITIL SVS, can be applied to any type of improvement, from high level organizational changes to individual services and configuration items. When assessing the current state, there are many techniques that can be used, such as a strength, weakness, opportunity and threat (SWOT) analysis, balanced scorecard reviews, internal and external assessments and audits, or a combination of a number of techniques.

Approaches to continual improvement can be found in many methods and techniques. Lean methods provide perspectives on the elimination of waste. Agile methods focus on making improvement incrementally. DevOps methods look at working holistically and ensuring improvements are not only designed well, but applied effectively.

Although there are a number of methods available, it is a good idea to select a few key methods that are appropriate to the types of improvements the organization considers and to promote those methods. In this way, teams can have a shared understanding of how to work together on improvements and a greater amount of change can be made at a quicker rate. However, the organization should also try new approaches or encourage innovation. Those in the organization with skills in alternative methods should be encouraged to apply them when it makes sense, and if this effort is successful, older methods can be retired in favor of new ones.

Key activities of Continual Improvement

- 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

Continual Improvement: everyone’s responsibility

Continual improvement is the responsibility of everyone. Everyone in the organization should understand the need for active participation in continual improvement activities as core part of their job. Continual improvement should be included in the job descriptions and objectives of every employee as well as in contracts with external suppliers and contractors.

The highest levels of the organization need to take responsibility for embedding continual improvement into the way that people think and work. The leaders in the organization should exhibit commitment to continual improvement and supporting attitudes, behavior, and culture to a point where improvements are considered in everything that is done, at all levels.

Although everyone should contribute in some way, there should be a team dedicated full-time to lead continual improvement efforts and guide others in the organization to develop the skills they need and navigating any difficulties that may be encountered. This team can serve as coordinators and mentors to help others in developing the skills they need and navigating any difficulties that may be encountered. In an organization, the employees should be provided training and assistance to help them feel prepared to contribute to continual improvement.

When parties and third-party suppliers form part of the service landscape, they should be included in the improvement effort. A contract for a supplier's service should include details of how they will measure, report on, and improve their services over the life of the contract. Any data required from suppliers to operate internal improvements should be specified in the contract. Accurate and carefully analyzed data is the foundation of fact-based decision-making for improvement. The continual improvement practice should be supported by relevant data sources and data analysis to ensure that each potential improvement is understood and prioritized.

Continual Improvement register

Organizations use a structured document or database called Continual Improvement Register (CIR) to track and manage improvement ideas.

- The foundation for improvement is carefully analyzed and accurate data.
- This is where improvement ideas are captured, documented, assessed, prioritized, and appropriately acted upon to ensure that the organization and its services are always being improved.

The given table shows an example of CIR.

Date	Initiative	size	priority	due date	team	Comments
Nov ‘18	Improve NW speed	M	H	Jan’19	Infrastructure	Waiting supplier
April ‘18	Improve SD self help	M	M	Dec ‘18	Service Desk	On Track
Jan ‘18	Communication on security	L	H	Dec ‘18	GRC	Well received

The foundation for improvement is carefully analyzed and accurate data. The continual improvement practice should be supported by relevant data sources and data analysis to ensure that each potential improvement is sufficiently understood and prioritized.

The CIR/s is used as the basis for re-prioritizing improvement ideas as and when new ideas are documented. The structure of the information captured in a CIR is unimportant. What is important, is that each improvement idea is captured, documented, assessed, prioritized, and appropriately acted upon to ensure that the organization and its services are always being improved.

Change Control

Change refers to the addition, deletion, and modification of anything that could have effect on services.

The purpose of the change control practice is to maximize the number of successful IT changes by:

- Ensuring that risks have been properly measured
- Authorizing changes to proceed
- Managing the change schedule

Each organization defines the scope of change. The scope typically includes all IT infrastructure, applications, documentation, processes, supplier relationships, and anything that might directly or indirectly impact a product or service.

Distinguish Change Control from Organizational Change Management

Organizational Change Management	Change Control
● Manages the people aspects of changes ● Ensures that improvements and organizational transformation initiatives are implemented successfully	● Focusses on changes in products and services ● Balances the need to make beneficial changes that deliver additional value with the need to protect customers and users from the adverse effect of changes

Types of Changes

Standard Changes	Normal Changes	Emergency Changes
Low-risk, pre-authorized changes that are well-understood and fully-documented. Can be implemented without the need of additional authorization. Standard changes can be service requests or operational changes.	Should be scheduled and assessed following a standard process that usually includes authorization. Can be low-risk changes or major changes.	Must be implemented as soon as possible usually to resolve an Incident. The process for assessment and authorization is expedited to ensure they can be implemented quickly. May be a separate change authority is required which includes senior managers who understand business risk.

Different changes deal with authorization differently.

Standard changes do not require any additional authorization and may be implemented as long as it follows pre-defined workflow or structure. The risks around standard changes are usually evaluated upfront and the work-flow and procedure around the change agreed.

Example of a standard change may be the updating of virus software; adding or removing server memory.

Normal changes can pose a low risk or a high risk to organizations. For low-risk changes, the change authority is usually someone who can make rapid decisions, often using automation to speed up the change. For major changes, the change authority could be as high as the board of management (or equivalent). Although this type of authorization may take slightly longer, it is important to understand the impact and the risk to the organization to ensure the change is well planned and the risk is understood at the correct levels.

Emergency changes are often high risk, so even though the authorization may be expedited it is critical to ensure that all role players understand the risk to the organization.

Change authority

- All changes are assessed and authorized by the people who understand the risks and expected benefits before the changes are deployed.
- The person or group who authorizes a change is known as a change authority.

The authorized people are known as change authority. It is important to assign each type of change to the correct change authority to ensure that change control is both efficient and effective. In high velocity organizations, it is a common practice to decentralize change approval, making the peer review a top predictor of high performance.

Change Schedule

After the identified changes have been deployed, the change schedule can also be used to provide information needed for incident management, problem management, and improvement planning.

The change schedule can be used to communicate the change across the organization; regardless of who the change authority is or what type of change it is. The communication about change is important for the risk assessment activity, where it is important to understand what other changes are planned and who is involved. It is also important to communicate information about the change to ensure people in IT and the business are fully prepared before it is deployed.

Incident Management

Incident refers to an unplanned interruption to a service, or reduction in the quality of a service.

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

Incident management can have a massive impact on customer and user satisfaction, and on how they recognize the service provider. Managing incidents is an important practice for the service provider to ultimately meet the expectations of the users and customers.

Key activities of Incident Management

To ensure that every incident is resolved in a time that meets the customer's expectations, it should be logged and managed. To make the expectations realistic, target resolution times are agreed, documented, and communicated. Incidents are prioritized based on an agreed classification to ensure that incidents with the highest business impact are resolved first.

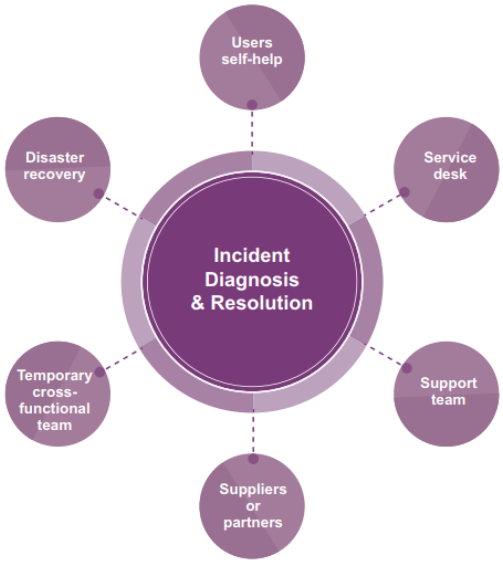
Designing the Incident Management practice

Organizations should design their incident management practice:

- Design the incident management practice for appropriate management and resource allocation to different types of incidents: Low impact incidents must be managed efficiently to ensure that they do not consume too many resources. Incidents with a larger impact may require more resources and more complex management. There are usually separate processes for managing major incidents, and for managing information security incidents.
- Store information about incidents in incident records: A suitable tool should be used to store and provide links to configuration items, changes, problems, known errors, and other knowledge to enable quick and efficient diagnosis and recovery.
- Provide good-quality updates on incidents: People working on an incident should provide good quality updates about symptoms, business impact, configuration items affected, actions completed, and actions planned. The updates should have a timestamp and information about the people involved, so that the people involved or interested can be kept informed.

Incident diagnosis and resolution

Incidents diagnosis and resolution involves people in different groups/teams.



Incidents may be diagnosed and resolved by people in many different groups, depending on the complexity of the issue or the incident type. Incidents may be escalated to a support team for resolution. The routing is typically based on the incident category. Anyone working on an incident should provide quality, timely updates. Incident management requires a high level of collaboration within and between teams. It is important that all of these groups understand the incident management process, and how their contribution to this helps to manage the value, outcomes, costs, and risks of the services provided:

1. Some incidents will be resolved by the users themselves, using self-help.
2. Some incidents will be resolved by the service desk.
3. Complex incidents will usually be escalated to a support team for resolution. Generally, the routing is based on the incident category, which should help to identify the correct team.
4. Incidents can be escalated to suppliers or partners, who offer support for the products and services they supply.
5. Complex incidents and all major incidents often require a temporary team to work together to identify the resolution. This may include representatives of many stakeholders, including the service provider, suppliers, and users.
6. In some extreme cases, disaster recovery plans may be invoked to resolve an incident.

Problem Management

Problem refers to a cause, or potential cause, of one or more incidents.

The purpose of problem management is to:

- Reduce the likelihood and impacts of incidents by identifying actual and potential causes of incidents
- Managing workarounds and known errors”

Known Error: “A problem that has been analyzed and has not been resolved.”

No service is without errors, flaws, or vulnerabilities, and these lead to incidents. Errors can occur in any of the four dimensions of service management and although many of the errors are identified and resolved before the service is live, some remain unidentified or unresolved. It is these errors that can, and will, pose a risk to live services. In ITIL, these errors are referred to as problems and they are managed by the problem management practice.

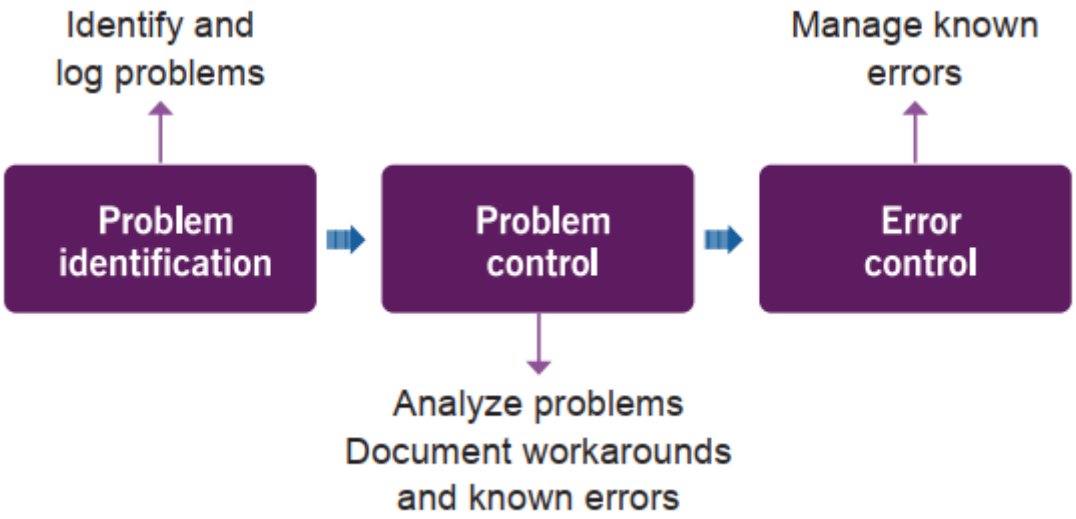
How problem is different from incident?

Problems and incidents are related to each other, but should be distinguished as they are managed in different ways.

problems	Incidents
Are the causes of incidents	Have an impact on users or business processes
Require investigation and analysis to identify the causes, develop workarounds, and recommend longer term resolution	Must be resolved so that the normal business activity can continue to work

Phases of problem Management

Problem management involves three phases: Problem identification, Problem control, and Error control.



Problem Identification

Problem identification activities identify and log problems. This includes:

- Performing trend analysis of incident records
- Detecting duplicate and recurring issues by users, service desk, and technical support staff
- Identifying a risk that an incident could recur
- Analyzing information received from suppliers and partners
- Analyzing information received from internal software developers software developers, quality teams, and project teams

Problem Control

Problem control activities include analyzing problems and documenting workarounds and known errors.

Workaround is a solution that reduces or eliminates the impact of an incident or problem for which a full resolution is not yet available. Some workarounds reduce the likelihood of incidents.

Problems are prioritized for analysis based on the risk that they pose, and are managed as risks, based on their potential impact and probability. It is not necessary to analyze every problem, rather it is more valuable to make significant progress on the highest priority problems.

Incidents have many interrelated causes. Problem control should consider all contributory causes, such as the causes that contribute to duration and impact of incidents. It is necessary to analyze problems from the perspective of all four dimensions of service management - People, Technology, Partners, and Processes.

When a problem cannot be resolved quickly, it is useful to find and document a workaround for future incidents, based on understanding of the problem. Workarounds are documented in problem records. This can be done at any stage, it doesn't need to wait for analysis to be completed. An effective incident workaround can be considered a permanent way of dealing with a problem when resolving the problem is not feasible or cost-effective. In this case, the problem remains in the known error status, and the documented workaround is applied if and when the related incidents occur.

Error Control

Error control activities manage known errors. A known error refers to a problem where initial analysis is complete; it usually means that faulty components have been identified. Error control involves identifying potential permanent solutions. Often these permanent solutions will involve a change request for implementation of the solution, but only if this can be justified in terms of cost, risks, and benefits. Error control regularly re-assesses the status of known errors that have not been resolved, including overall impact on customers, availability and cost of permanent resolutions, and effectiveness of workarounds.

The effectiveness of workarounds should also be evaluated each time a workaround is used. Workarounds may be improved based on the assessment.

Problem management is related to the following other practices:

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

- Risk management: Problem management activities can be organized as a specific case of risk management. These activities identify, assess, and control risks in any of the four dimensions of service management. It is useful to adopt risk management tools and techniques for problem management.
- Change control: Problem management initiates resolution via change control and participates in the post implementation review; however, approving and implementing changes is out of scope for the problem management practice.
- Knowledge management: “Problem management may utilize information in a knowledge management system to investigate, diagnose, and resolve problems.”
- Continual improvement: Problem management activities can identify improvement opportunities in all four dimensions of service management. In some cases, solutions can be treated as improvement opportunities, so they are included in a continual improvement techniques.

Relation of problem Management with people, skills, and Competences

- Problem management activities are highly reliant on the knowledge and experience of staff, rather than on detailed procedures.
- For diagnosing problems, it is required to understand complex systems and to think about how different failures might have occurred. The development of the combination of the required analytic and creative ability requires mentoring and time, as well as suitable training.

Service Request Management

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

The purpose of the service request management practice is:

- To provide the promised quality of a service by handling all pre-defined, user-initiated service requests in an effective and comprehensible manner.

Incidents refer to a failure or degradation to a service, and service requests form a normal part of service delivery. As these requests are pre-defined and pre-agreed, they should be formalized with a clear, standard procedure for initiation, approval, fulfilment, and management.

Examples of service request

- A request for a service delivery action, such as providing a report
- A request for information, such as information on how to create a document
- A request for provision of a resource or service, such as providing a virtual server for a development team A request for access to a resource or service, such as providing access to a file
- Feedback, compliments, and complaints, such as complaints on implementation of new interface

Delivery of service requests

- Service requests form a normal part of service delivery, and not a failure/degradation of service.
- As requests are pre-defined and agreed, they can usually be formalized with a clear, standard procedure for:
  - Initiation
  - Approval
  - Fulfilment
  - Management
- Some requests are very simple (such as request for information).

- Some requests are complex (such as the setup of a new employee) and require involvement from other teams.
- Regardless of the complexity, the steps to fulfil the request should be well-known and proven. This enables the service provider to agree times for fulfilment and provide clear communication of the status of the request to users

To be handled successfully, service request management should follow these guidelines:

- Service requests and their fulfilment should be standardized and automated to the greatest degree possible.
- Policies should be established regarding what service requests will be fulfilled with limited or even no additional approvals so that fulfilment can be streamlined.
- The expectations of users regarding fulfilment times should be clearly set, based on what the organization can realistically deliver.
- Opportunities for improvement should be identified and implemented to produce faster fulfilment times and take additional advantage of automation.
- Policies and workflows should be included for the documenting and redirecting of any requests that are submitted as service requests.

Some service requests can completely be fulfilled with automation from submission to closure, allowing for a complete self-service experience. Examples of such service requests are client software installation or provision of virtual servers. Service request management is dependent upon well-designed processes and procedures, which are operationalized through tracking and automation tools to maximize the efficiency of the practice.

Service desk

The purpose of the service desk practice is to:

- Understand demand for incident resolution and service requests
- Act as the point of contact for the service provider along with its users
- Provide a clear path for users to report issues, queries, and requests, and acknowledge, classify, own, and take action on them

A service desk acts as the entry point/single point of contact for the IT or service organization. Although the physical appearance of the service desk and how it is staffed may vary considerably from organization to organization, the function and value of the service desk remains the same. Service desks are used to get matters arranged, explained, and coordinated, rather than just to get broken technology fixed. Service desk has become a vital part of any service operation.

Key aspects of service desk

- Supports 'people and business', rather than providing support for technical issues
- Should be the empathetic and informed link between the service provider and its users
- Should have practical understanding of the wider organization, its business processes, and users
- Has a major influence on user experience and how the service provider is perceived by the users
- Arranges, explains, and coordinates various matters than just fixing broken technology
- Become a vital part of any service operation
- Works in close collaboration with the support and development teams to present and deliver a 'joined up' approach to users and customers
- Need not to be highly technical
- Plays a vital role in the delivery of services

These days, due to shift of technology to automation, artificial intelligence, robotic process automation, and chatbots, service desks are providing more self-service logging and resolution directly through online portals and mobile applications. The impact of this shift on service desk is less phone contact, less low-level work, and a greater ability to focus on excellent customer experience when personal contact is needed.

Structures of service desk

A service desk may work at a single or centralized location, which requires various supporting technologies, such as:

- Intelligent telephony systems
- Workflow systems for routing and escalation
- Workforce management and resource planning systems
- knowledge base
- Call recording and quality control
- Remote access tools
- Dashboard and monitoring tools
- Configuration management systems

In some cases, a service desk may act as a virtual desk that enables agents to work from different geographical locations. A virtual service desk requires more sophisticated supporting technology and more complex routing and escalation. These solutions are often cloud-based.

Service desk staff

Service desk staff require training and competency across a number of broad technical and business areas.

The service desk staff demonstrates the excellent customer service skills. In particular, they need skills and knowledge to understand and analyze a specific incident in terms of business priority and to take appropriate action to get this resolved. Other key skills that they require are empathy and emotional intelligence. The service desk may not need to be highly technical, although some are. Even if the service desk is fairly simple, it still plays a vital role in the delivery of services, and must be actively supported by its peer groups. It is also essential to understand that the service desk has a major influence on user experience and how the service provider is perceived by the users.

Service Level Management

The purpose of the service level management practice is to set clear business-based targets for service performance, so that the delivery of a service can be properly assessed, monitored, and managed against these targets. In order to achieve this purpose, the service level management practice defines, documents, and actively manages levels of service.

Key activities of service Level Management

- The service level management practice involves the definition, documentation, and active management of service levels.
- It provides end to end visibility of the organization's services. For this, the service level management practice:
  - Establishes a shared view of the services and target service levels with customers
  - Ensures the organization meets the defined service levels
  - Performs service reviews
  - Captures and reports on service issues including performance against defined service levels

Service Level agreements

- Since years, service level management uses a tool to measure the performance of services from the customer's point of view. This tool is referred as Service Level Agreements (SLAs).
- This tool is used to agree on the service between the provider and customer.

Some key requirements of SLAs include:

- They must relate to a defined service in the service catalogue. Otherwise, they are individual metrics that do not provide any purpose and do not reflect the service perspective.
- They should relate to defined outcomes. To achieve this, service level management needs to use balanced bundle of metrics, such as customer satisfaction.
- They should replicate an agreement of engagement and discussion between the service provider and the consumer.
- They must be simply written and easy to understand and useful for all parties.

The Watermelon SLA Effect

"In many cases, using single system-based metrics as targets can result in misalignment and a disconnect between service partners as to the success of the service delivery and the user experience. For example, if an SLA is only based on the percentage of uptime of a service, it can be deemed to be successful by the provider, yet still miss out on important business functionality and outcomes which are important to the consumer. This is referred to as the 'Watermelon SLA' effect.

Requirements of service Level Management

- The service level management practice requires:
  - Focus and effort to engage and listen to the requirements, issues, concerns, and daily needs of customers.
  - Engagement to understand and confirm the needs and requirements from customers.
  - Listening to build relationship and trust to show customers that they are valued and understood.

The service level management involves collating and analyzing information from various sources. These include:

- **Customer engagement**: It involves listening, discovery, and information on which the metrics is based. In addition, it involves measurement and ongoing progress discussions. In customer engagement, you can ask simple questions, such as:
  - What does your work involve?
  - How does technology help you?
  - What are your key business times, areas, people, and activities?
  - Which of these activities is most important to you?
  - What are your goals, objectives, and measurements for this year?
  - How can we help you more?

- **Customer feedback**: It involves gathering feedback from a number of sources, such as:
  - Surveys: It include immediate feedback, such as follow up questions, as well as the feedback on the overall service experience.
  - key business-related measures: It include measures agreed between the service provider and their customers based on what the customer values as important.
- **Operational metrics**: These are the low-level indicators of operational activities. They include system availability, incident response and fix times, change and request processing times, and system response times.
- **Business metrics**: Any business activity that is thought to be useful or valuable by the customer and used as a means of gauging the success of the service. This can vary from some simple transactional binary measures such as ATM or POS terminal availability during business hours (09:00 – 17:00 daily) or successful completion of business activities, for instance, passenger check-in.

Information security Management

The purpose of the information security management practice is to:

- Safeguard the information used by organizations to run their business
- Understand and manage risks for confidentiality, integrity and availability of information
- Maintain information security for authentication and nonrepudiation Security is established by means of policies, processes, behaviors, risk management, and controls, which must maintain a balance between:
  - Prevention: Ensures security risks do not occur
  - Detection: Detecting risks that cannot be prevented
  - Correction: Recovering from risks after they are detected

Relationship Management

The purpose of the relationship management practice is to:

- Create and foster the links between the organization and its stakeholders at strategic and tactical levels
- Identify, analyze, monitor, continually improve the relationships with and between stakeholders

The relationship management practice ensures that the:

- Needs of stakeholders are understood, and products and services are prioritized
- Constructive relationship is established relationship between the organization and stakeholders
- Priorities for new or changed products/services for customers are established and maintained
- Complaints and escalations from stakeholders are managed well
- Products and services facilitate value creation for the service consumers and organizations
- Organizations facilitate value creation for all stakeholders

Supplier Management

The purpose of the supplier management practice is to:

- Ensure that the supplier and their performance are managed appropriately to support the seamless provision of quality products and services
- Create more collaborative relationships with key supplier
- Uncover and realize new value and reduce risk of failure

Key activities of supplier management are:

- 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

IT Asset Management

"IT asset refers to any valuable component that can contribute to delivery of an IT product or service."

The purpose of the IT asset management practice is to plan and manage the lifecycle of all IT assets. This in turn helps the organization to:

- Maximize value for customers
- Control costs and budgets
- Cope with risks
- Make decisions in terms of purchase and reuse
- Meet governing and promised requirements

The IT asset management practice includes management of software, hardware, networking, and cloud services and devices. It may also include non-IT assets, such as infrastructure and information, operational technology, such as devices that are part of Internet of Things.

Monitoring and event Management

An event can be defined as any change of state that has significance for the management of a Configuration Item (CI) or IT service. Events are typically recognized through notifications created by an IT service, CI, or monitoring tool.

- The purpose of the monitoring and event management practice is to:
  - Analyze service components
  - Record and report changes of state identified as events
  - Prioritize infrastructure, services, business processes, and information security events
  - Manage events throughout their lifecycle

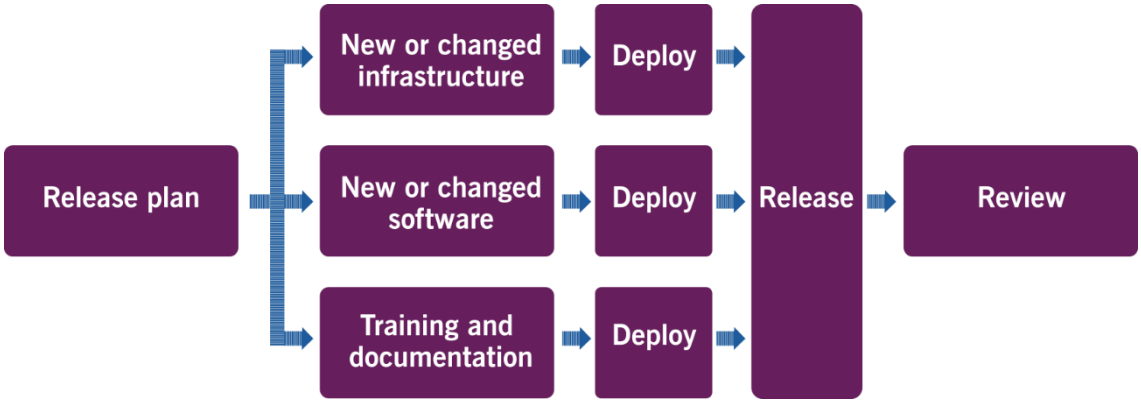
The monitoring part emphases on the observation of services and CIs. It can be done actively or passively, but should be performed in a highly automated manner.

The event management part emphases on recording and managing monitored changes that are defined as events, analyzing the significance of events, and taking the correct control action for managing them.

Release Management

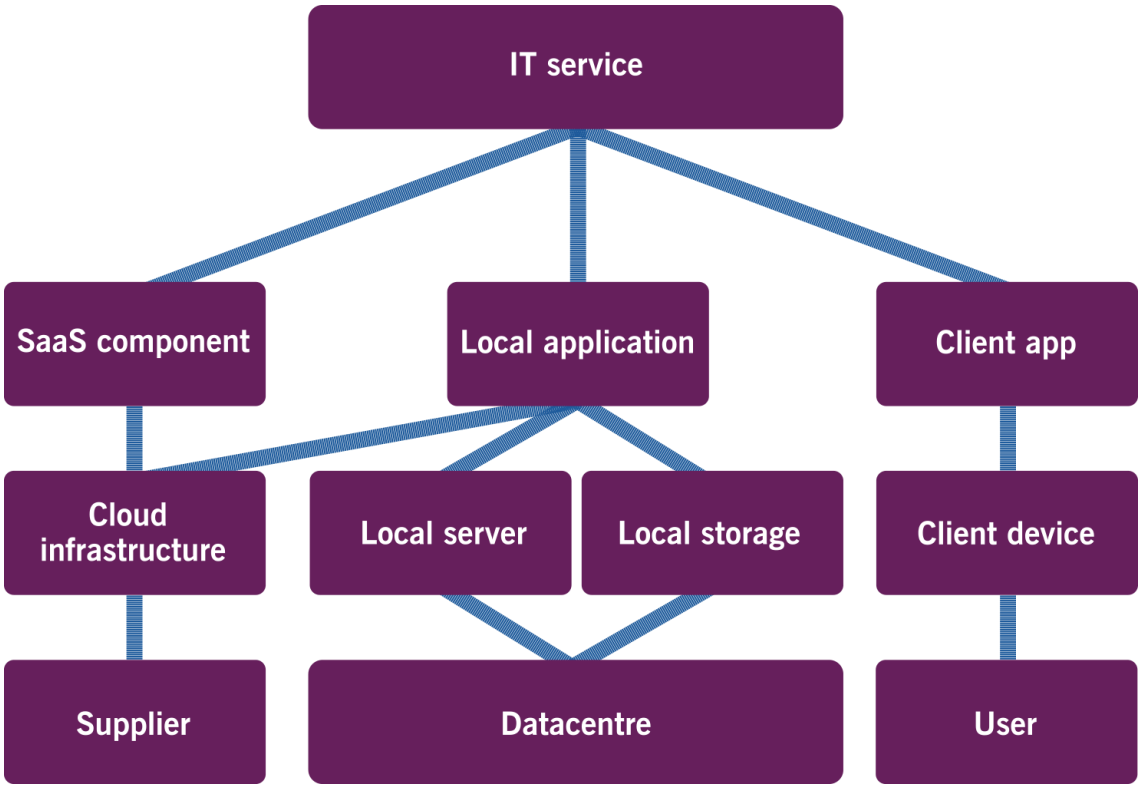
The purpose of the release management practice is to make new and changed services and features available for use.

A release includes various infrastructure and application components to deliver new or modified service. It may also comprise documentation, updated processes, or tools. Each element of a service may be developed by the service provider, or procured from a third party and integrated by the service provider.



Service Configuration Management

- The purpose of the service configuration management practice is depicted in following points:
  - The information about the configuration of services and Cis is accurate and reliable and available when needed.
  - Collect and manage information about varied CIs, such as hardware, software, networks, users, and documents.
  - Provide information about CIs on how CIs interact, relate, and depend on each other to create value for customers and users.



It is important to note that services are also treated as CIs, and configuration management helps the organization to understand how the CIs that contribute to each service work together. The given figure is a simplified diagram showing how multiple CIs contribute to an IT service.

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 is a separate practice even though it works closely with release management and change control. Deployment management may also be referred to as ‘provisioning’. The term provisioning however is often used to describe the deployment of infrastructure, while “deployment” refers to software deployment. Within ITIL, the practice of deployment management refers to both the “provisioning” of infrastructure and the “deployment” of software.

Glossary terms and definitions

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

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

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

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

information and technology	One of the four dimensions of service management. It includes the information and knowledge used to deliver services, and the information and technologies used to manage all aspects of the service value system.
information security management practice	The practice of protecting an organization by understanding and managing risks to the confidentiality, integrity, and availability of information.
information security policy	The policy that governs an organization's approach to information security management.
infrastructure and platform management practice	The practice of overseeing the infrastructure and platforms used by an organization. This enables the monitoring of technology solutions available, including solutions from third parties.
integrity	A security objective that ensures information is only modified by authorized personnel and activities.
internal customer	A customer who works for the same organization as the service provider.
Internet of Things	The interconnection of devices via the internet that were not traditionally thought of as IT assets, but now include embedded computing capability and network connectivity.
IT asset	Any financially valuable component that can contribute to the delivery of an IT product or service.
IT asset management practice	The practice of planning and managing the full lifecycle of all IT assets.
IT infrastructure	All of the hardware, software, networks, and facilities that are required to develop, test, deliver, monitor, manage, and support IT services.
IT service	A service based on the use of information technology.
ITIL	Best-practice guidance for IT service management.
ITIL guiding principles	Recommendations that can guide an organization in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure.
ITIL service value chain	An operating model for service providers that covers all the key activities required to effectively manage products and services.
Kanban	A method for visualizing work, identifying potential blockages and resource conflicts, and managing work in progress.
key performance indicator (KPI)	An important metric used to evaluate the success in meeting an objective.
knowledge management practice	The practice of maintaining and improving the effective, efficient, and convenient use of information and knowledge across an organization.
known error	A problem that has been analysed but has not been resolved.
Lean	An approach that focuses on improving workflows by maximizing value through the elimination of waste.
lifecycle	The full set of stages, transitions, and associated statuses in the life of a service, product, practice, or other entity.
live	Refers to a service or other configuration item operating in the live environment.

live environment	A controlled environment used in the delivery of IT services to service consumers.
maintainability	The ease with which a service or other entity can be repaired or modified.
major incident	An incident with significant business impact, requiring an immediate coordinated resolution.
management system	Interrelated or interacting elements that establish policy and objectives and enable the achievement of those objectives.
maturity	A measure of the reliability, efficiency and effectiveness of an organization, practice, or process.
mean time between failures (MTBF)	A metric of how frequently a service or other configuration item fails.
mean time to restore service (MTRS)	A metric of how quickly a service is restored after a failure.
measurement and reporting	The practice of supporting good decision-making and continual improvement by decreasing levels of uncertainty.
metric	A measurement or calculation that is monitored or reported for management and improvement.
minimum viable product (MVP)	A product with just enough features to satisfy early customers, and to provide feedback for future product development.
mission statement	A short but complete description of the overall purpose and intentions of an organization. It states what is to be achieved, but not how this should be done.
model	A representation of a system, practice, process, service, or other entity that is used to understand and predict its behaviour and relationships.
modelling	The activity of creating, maintaining, and utilizing models.
monitoring	Repeated observation of a system, practice, process, service, or other entity to detect events and to ensure that the current status is known.
monitoring and event management practice	The practice of systematically observing services and service components, and recording and reporting selected changes of state identified as events.
obtain/build	The value chain activity that ensures service components are available when and where they are needed, and that they meet agreed specifications.
operation	The routine running and management of an activity, product, service, or other configuration item.
operational technology	The hardware and software solutions that detect or cause changes in physical processes through direct monitoring and/or control of physical devices such as valves, pumps, etc.
organization	A person or a group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives.
organizational change management practice	The practice of ensuring that changes in an organization are smoothly and successfully implemented and that lasting benefits are achieved by managing the human aspects of the changes.

organizational resilience	The ability of an organization to anticipate, prepare for, respond to, and adapt to unplanned external influences.
organizational velocity	The speed, effectiveness, and efficiency with which an organization operates. Organizational velocity influences time to market, quality, safety, costs, and risks.
organizations and people	One of the four dimensions of service management. It ensures that the way an organization is structured and managed, as well as its roles, responsibilities, and systems of authority and communication, is well defined and supports its overall strategy and operating model.
outcome	A result for a stakeholder enabled by one or more outputs.
output	A tangible or intangible deliverable of an activity.
outsourcing	The process of having external suppliers provide products and services that were previously provided internally.
partners and suppliers	One of the four dimensions of service management. It encompasses the relationships an organization has with other organizations that are involved in the design, development, deployment, delivery, support, and/or continual improvement of services.
partnership	A relationship between two organizations that involves working closely together to achieve common goals and objectives.
performance	A measure of what is achieved or delivered by a system, person, team, practice, or service.
pilot	A test implementation of a service with a limited scope in a live environment.
plan	The value chain activity that ensures a shared understanding of the vision, current status, and improvement direction for all four dimensions and all products and services across an organization.
policy	Formally documented management expectations and intentions, used to direct decisions and activities.
portfolio management practice	The practice of ensuring that an organization has the right mix of programmes, projects, products, and services to execute its strategy within its funding and resource constraints.
post-implementation review (PIR)	A review after the implementation of a change, to evaluate success and identify opportunities for improvement.
practice	A set of organizational resources designed for performing work or accomplishing an objective.
problem	A cause, or potential cause, of one or more incidents.
problem management practice	The practice of reducing the likelihood and impact of incidents by identifying actual and potential causes of incidents, and managing workarounds and known errors.
procedure	A documented way to carry out an activity or a process.
process	A set of interrelated or interacting activities that transform inputs into outputs. A process takes one or more defined inputs and turns them into defined outputs. Processes define the sequence of actions and their dependencies.

product	A configuration of an organization's resources designed to offer value for a consumer.
production environment	See live environment.
programme	A set of related projects and activities, and an organization structure created to direct and oversee them.
project	A temporary structure that is created for the purpose of delivering one or more outputs (or products) according to an agreed business case.
project management practice	The practice of ensuring that all an organization's projects are successfully delivered.
quick win	An improvement that is expected to provide a return on investment in a short period of time with relatively small cost and effort.
record	A document stating results achieved and providing evidence of activities performed.
recovery	The activity of returning a configuration item to normal operation after a failure.
recovery point objective (RPO)	The point to which information used by an activity must be restored to enable the activity to operate on resumption.
recovery time objective (RTO)	The maximum acceptable period of time following a service disruption that can elapse before the lack of business functionality severely impacts the organization.
relationship management practice	The practice of establishing and nurturing links between an organization and its stakeholders at strategic and tactical levels.
release	A version of a service or other configuration item, or a collection of configuration items, that is made available for use.
release management practice	The practice of making new and changed services and features available for use.
reliability	The ability of a product, service, or other configuration item to perform its intended function for a specified period of time or number of cycles.
request catalogue	A view of the service catalogue, providing details on service requests for existing and new services, which is made available for the user.
request for change (RFC)	A description of a proposed change used to initiate change control.
resolution	The action of solving an incident or problem.
resource	A person, or other entity, that is required for the execution of an activity or the achievement of an objective. Resources used by an organization may be owned by the organization or used according to an agreement with the resource owner.
retire	The act of permanently withdrawing a product, service, or other configuration item from use.
risk	A possible event that could cause harm or loss, or make it more difficult to achieve objectives. Can also be defined as uncertainty of outcome, and can be used in the context of measuring the probability of positive outcomes as well as negative outcomes.

risk assessment	An activity to identify, analyse, and evaluate risks.
risk management practice	The practice of ensuring that an organization understands and effectively handles risks.
service	A means of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks.
service action	Any action required to deliver a service output to a user. Service actions may be performed by a service provider resource, by service users, or jointly.
service architecture	A view of all the services provided by an organization. It includes interactions between the services, and service models that describe the structure and dynamics of each service.
service catalogue	Structured information about all the services and service offerings of a service provider, relevant for a specific target audience.
service catalogue management practice	The practice of providing a single source of consistent information on all services and service offerings, and ensuring that it is available to the relevant audience.
service configuration management practice	The practice of ensuring that accurate and reliable information about the configuration of services, and the configuration items that support them, is available when and where needed.
service consumption	Activities performed by an organization to consume services. It includes the management of the consumer's resources needed to use the service, service actions performed by users, and the receiving (acquiring) of goods (if required).
service continuity management practice	The practice of ensuring that service availability and performance are maintained at a sufficient level in case of a disaster.
service design practice	The practice of designing products and services that are fit for purpose, fit for use, and that can be delivered by the organization and its ecosystem.
service desk	The point of communication between the service provider and all its users.
service desk practice	The practice of capturing demand for incident resolution and service requests.
service financial management practice	The practice of supporting an organization's strategies and plans for service management by ensuring that the organization's financial resources and investments are being used effectively.
service level	One or more metrics that define expected or achieved service quality.
service level agreement (SLA)	A documented agreement between a service provider and a customer that identifies both services required and the expected level of service.
service level management practice	The practice of setting clear business-based targets for service performance so that the delivery of a service can be properly assessed, monitored, and managed against these targets.
service management	A set of specialized organizational capabilities for enabling value for customers in the form of services.
service offering	A formal description of one or more services, designed to address the needs of a target consumer group. A service offering may include goods, access to resources, and service actions.

service owner	A role that is accountable for the delivery of a specific service.
service portfolio	A complete set of products and services that are managed throughout their lifecycles by an organization.
service provider	A role performed by an organization in a service relationship to provide services to consumers.
service provision	Activities performed by an organization to provide services. It includes management of the provider's resources, configured to deliver the service; ensuring access to these resources for users; fulfilment of the agreed service actions; service level management; and continual improvement. It may also include the supply of goods.
service relationship	A cooperation between a service provider and service consumer. Service relationships include service provision, service consumption, and service relationship management.
service relationship management	Joint activities performed by a service provider and a service consumer to ensure continual value co-creation based on agreed and available service offerings.
service request	A request from a user or a user's authorized representative that initiates a service action which has been agreed as a normal part of service delivery.
service request management practice	The practice of supporting the agreed quality of a service by handling all pre-defined, user-initiated service requests in an effective and user-friendly manner.
service validation and testing practice	The practice of ensuring that new or changed products and services meet defined requirements.
service value system (SVS)	A model representing how all the components and activities of an organization work together to facilitate value creation.
software development and management practice	The practice of ensuring that applications meet stakeholder needs in terms of functionality, reliability, maintainability, compliance, and auditability.
sourcing	The activity of planning and obtaining resources from a particular source type, which could be internal or external, centralized or distributed, and open or proprietary.
specification	A documented description of the properties of a product, service, or other configuration item.
sponsor	A person who authorizes budget for service consumption. Can also be used to describe an organization or individual that provides financial or other support for an initiative.
stakeholder	A person or organization that has an interest or involvement in an organization, product, service, practice, or other entity.
standard	A document, established by consensus and approved by a recognized body, that provides for common and repeated use, mandatory requirements, guidelines, or characteristics for its subject.
standard change	A low-risk, pre-authorized change that is well understood and fully documented, and which can be implemented without needing additional authorization.
status	A description of the specific states an entity can have at a given time.

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

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

Integrating ITIL® 4 with Other Frameworks, Methodologies, and Practices

ITIL 4 provides guidance required to address new service management challenges and utilize the potential of modern technology.

There are a number of additional practices referred to in ITIL 4 with which you need to be familiar before you take the ITIL 4 Foundation training. This document will provide an introduction to some of the popular frameworks, methodologies, or practices and it is important to ensure that you are aware of what they are and how they relate to ITIL 4.

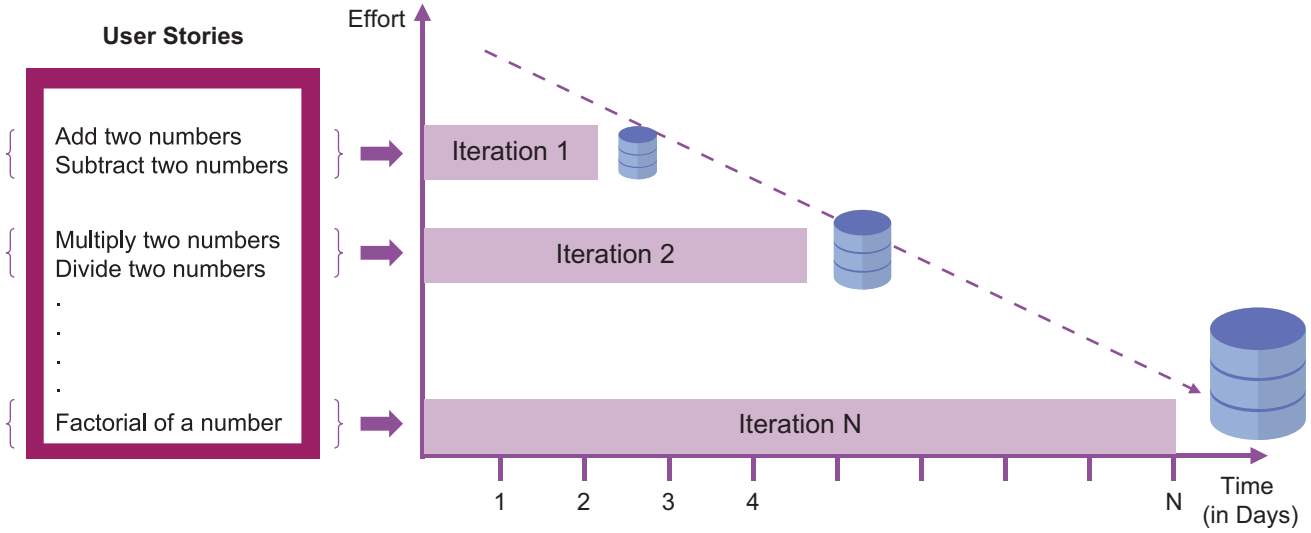
You may have an existing knowledge of some of these frameworks, methodologies, or standards, but reading this document will recap your basics and you will be able to relate with them during the ITIL 4 Foundation training. More information on the interaction of these frameworks with ITIL 4 will form part of the Foundation learning.

This section forms an important part of the additional study required for the ITIL 4 Foundation training and understanding the concepts of ITIL 4.

Agile and Scrum

AGILE: WHAT IT IS?

Agile is a time-boxed and iterative approach of product delivery. It aims to build product incrementally from the start of the project. Agile relies on adaptive planning and iterative development and delivery. It focuses primarily on the value of people in getting the job done effectively.



Agile focuses on smaller functional units instead of developing the complete software in a go.

The Agile way of working breaks a product into functional units according to user stories and prioritizes them to continuously deliver product in short cycles known as iterations. It is often used as a time-boxed, iterative approach to product delivery.

SCRUM: WHAT IT IS?

Scrum is the most popular framework based on Agile. It is an adaptive, iterative, fast, flexible, and effective approach designed to deliver significant value quickly and throughout a project. The Scrum framework is structured in such a way that it supports product and service development in all types of industries and in any type of project, irrespective of its complexity.

A key strength of Scrum lies in its use of cross-functional, self-organized, and empowered teams who divide their work into short, concentrated work cycles called Sprints. The Scrum framework consists of Scrum Teams and their associated roles, events, artifacts, and rules.

Comprehension: How Agile relates to ITIL 4?

Agile has its main focus in the engagement and transition of new requirements, dealing with the management of development of a service or product, whereas ITIL 4 is concerned with the entire lifecycle of a product or service, including the ongoing management and delivery of the product or service.

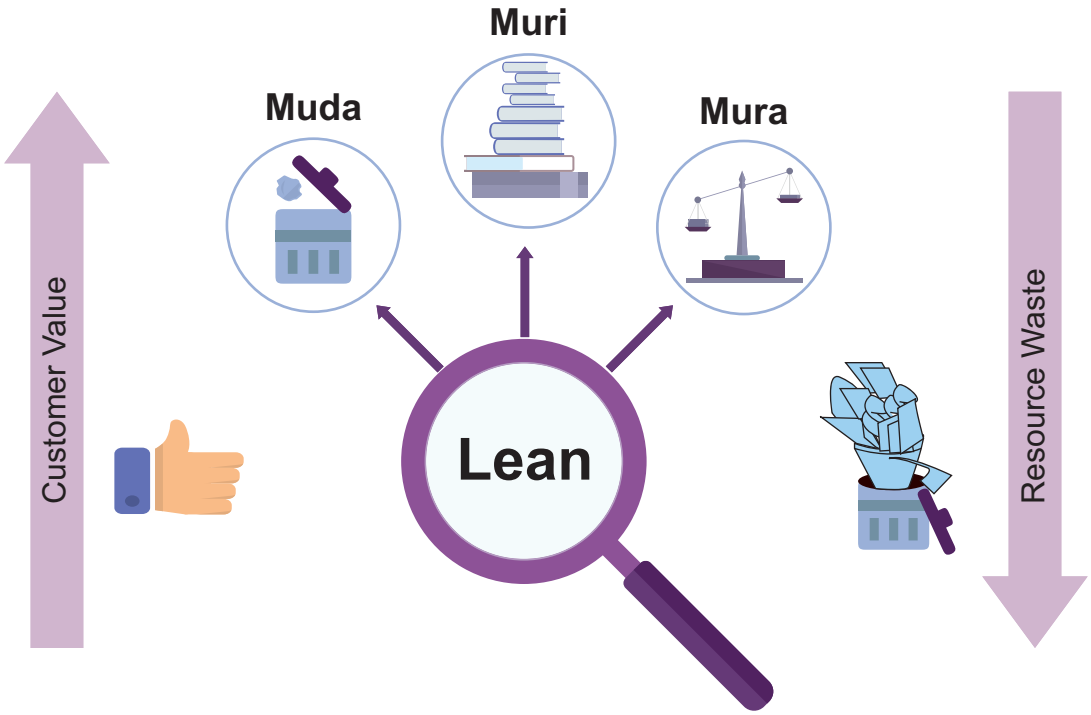
Agile can assist ITIL 4 in the design, transition, and ongoing improvement of the product or service. ITIL 4 will benefit from the Agile approach for requirements that need more speed or agility in release to the customer.

ITIL 4	**Agile**
Comprehensive framework	Design and management framework
Integrated governance and management	Flexible management
Continual service improvement	Iterative, incremental approach
Customer / consumer focused	Quality focused
Value creation through introduction and management of IT services	Value creation through introduction of IT services

Lean

WHAT IT IS?

Lean is a tested and proven method that uses a collection of tools to improve the way products and services are produced. It is also considered a mindset that pushes individuals to think about making the services better on a daily basis, improving the people, as well as the tools and products. Lean is a tested and proven method that uses a collection of tools to improve the way products and services are produced.



Lean is a term introduced by the Research team of Toyota to describe its business. The primary idea of Lean is to deliver maximum customer value with minimum waste of resources. Lean is an organized way that considers the following aspects to deliver maximum customer value:

- Eliminate waste (also known as Muda)
- Eliminate overburden/too high workload (also known as Muri)
- Eliminate lack of balance in workloads/lack of predictable flow (also known as Mura)

Lean should become the philosophy of how individuals work. The goal is to embed Continuous Improvement in organizations with the tagline of “Lean is how we do our work”. Organizations can accomplish Lean in a robust way by forming Kaizen project teams that work towards transforming major improvements to quick wins. These wins are the improvements that can be quickly and easily implemented and are available to users with immediate (visible) benefits.

Comprehension: ***How it relates to ITIL 4?***

The focus on removal of waste in the Lean approach supports the ITIL 4 aim of effective and efficient management of products and services. This is particularly important when identifying the requirements of the business in terms of value, so that anything that does not contribute to the creation of value is discarded.

Lean is very useful for ITIL 4 in that is allows a view of the ITIL 4 practices in terms of eliminating waste, to ensure the practices remain streamlined and fit for purpose.

ITIL 4	Lean
Comprehensive framework	Comprehensive approach
Integrated governance and management	Integrated management system
Continual service improvement	Continuous improvement
Customer / consumer focused	Customer focused
Value creation through introduction and management of IT services	Value creation through removal of waste and inefficiency

Kanban

WHAT IT IS?

Kanban uses a visual approach to manage tasks, and has been widely used in agile software development, but is being adapted for wider use in other situations. Work items, or tasks, are displayed on a kanban board, moving from one state to the next. So, a piece of task on which the work has to be done is identified, and then moved to the 'in progress' column. And finally once the task is complete, it is moved to the 'completed' column.

This simple technique was employed at Toyota to manage their stock and inventory consumption, by use of actual cards handed from person to person. This Just in Time (JIT) technique allowed everyone to manage materials as they are required. The adaptation to a Kanban board has enabled this to be used by other industry sectors, not just manufacturing.

Kanban is used by a number of software management tools, such as Trello, to provide a visual representation of a task list, and for monitoring task progress.

Comprehension: ***How it relates to ITIL 4?***

Kanban techniques can be used in any task based activity, from planning a new product or service, to the overall maintenance and improvement of a product or service. As Kanban is a flexible approach that can be adapted to many different uses, but will be particularly helpful in the management of products or services as the requirements are mapped and met. It is a very useful way of engaging with the consumer, so that everyone understands the progress that is being made on any task, no matter who is carrying it out.

Kanban compliments ITIL 4 practices by providing an engaging and visual approach to task management.

ITIL 4	Kanban
Comprehensive framework	Flexible approach
Integrated governance and management	Visual management
Continual service improvement	Clarity of task management
Customer / consumer focused	Task focused
Value creation through introduction and management of IT services	Value creation through management of tasks to completion

DevOps

WHAT IT IS?

DevOps is a CULTURAL and OPERATIONAL model that fosters COLLABORATION to ENABLE high-performance IT to ACHIEVE business goals. DevOps is not a product, standard, specification, framework, or job title. DevOps is about experiences, ideas, and culture to create high-performing IT organizations.

DevOps can mean many things to many people, and there are a lot of definitions in the market.

"**DevOps** isn't a thing. It's not a product, standard, specification, framework or job title. DevOps is about experiences, ideas and culture. It's about the close communication and collaboration between IT operations and development, and how they can improve the products and services that they produce by thinking differently about how they work together, using a new mentality."

Gareth Daine, Devops Evangelist

"Fundamentally, **DevOps** is the activity of optimizing the development-to-operations value stream by creating an increasingly smooth, fast flow of application changes from development into operations, with little waste. Optimization of the value stream takes place continuously using various continuous improvement techniques like the Toyota Kata."

Dave Roberts, Executive Advisor at BMC Software

DevOps Agile Skills Association (DASA) defines the scope of DevOps through six guiding principles. :

- Customer-Centric Action
- Cross-Functional Autonomous Teams
- Create with the End in Mind
- Continuous Improvement
- End-to-End Responsibility
- Automate Everything You Can

For more information about these principles, visit https://www.devopsagileskills.org/

DevOps allows IT to meet stakeholder demands for more rapid change and more production releases, without losing quality. DevOps blends the elements of Agile, Scrum, Lean, and IT service management to deliver business value.

Comprehension: ***How it relates to ITIL 4?***

DevOps provides a strong focus on the engagement with the business, supporting the overall aim of ITIL 4 to engage with the organization as a whole, by considering the service value. Utilizing DevOps in an organization supports the planning of new IT products and services, and incorporates the development approaches into the overall management of the new product or service.

ITIL 4 is a comprehensive framework, and DevOps compliments this by looking specifically at how development and operations can collaborate and work together to deliver a service or product in an holistic approach for the customer. DevOps also works with other approaches such as Agile, Scrum and Lean, which allows ITIL 4 to utilize the full benefits of all approaches.

ITIL 4	**DevOps**
Comprehensive framework	Collaborative approach
Integrated governance and management	Integrated management
Continual service improvement	Constant innovation
Customer / consumer focused	Customer focused
Value creation through introduction and management of IT services	Value creation through engagement from development to operation

PRINCE2 / Project Management

WHAT IT IS?

PRINCE2 (an acronym for PRojects IN Controlled Environments) is a de facto process-based method for effective project management.

Project management covers a number of approaches that manage projects to completion. There are many different methodologies (for example PMBoK, PMI) but they have in common the provision of controls and management of workflow to achieve a specific project outcome.

PRINCE2 is a structured project management method based on principles that originate from lessons learned from projects, both good and bad. PRINCE2 helps to meet the ever-increasing demands of the dynamic business scenario while dealing with the challenges presented by the risks and complexities of project management. It achieves this through a controlled, structured, and systematic way of managing projects. A unique advantage of PRINCE2 is that this method can be applied to any type of project and can easily be implemented alongside the specialist, industry-specific models or development life cycles.

Comprehension: ***How it relates to ITIL 4?***

Many of the activities undertaken in the ITIL 4 practices, design and transition, obtain and build, and planning will benefit from a project management approach. The project management discipline of quality gates supports the management of tasks, and may be used in conjunction with Agile and Lean approaches to support a dynamic development of new products and services.

Project management can be used in all areas of ITIL 4 where a project management approach would be useful. This will range from improvement programmes, to release management implementations, or the management of a design to operation.

ITIL 4	**Prince2**
Comprehensive framework	Project management methodology
Integrated governance and management	Integrated management and planning
Continual service improvement	Controllable delivery
Customer / consumer focused	Customer focused
Value creation through introduction and management of IT services	Value creation through management and delivery of specific output

KepnerandFourie®

WHAT IT IS?

The KEPNERandFOURIE® approach deals with problem management and incident management solving issues “First time every Time”, with Root Cause Analysis techniques. “We cannot fix effects, but we can fix causes.” This statement has a direct bearing on how IT staff is going to solve issues and challenges. Incident investigation and resolution are the root to resolving the correct causes. This will directly influence the ability to resolve an incident quickly, accurately, and permanently. The KEPNERandFOURIE® methodology provides a fast and structured approach to problem solving and decision making.

The KEPNERandFOURIE® methodology was founded by Chuck Kepner and Matt Fourie, who is the founder of Thinking Dimensions Global. The KEPNERandFOURIE® methodologies are accepted by ITIL and itSMF organizations across the world.

Comprehension: ***How it relates to ITIL 4?***

Problem solving is an important skill to support the continued improvement of all ITIL 4 practices. The KEPNERandFOURIE® approaches provide useful skills that can be employed for any issues that need to be addressed throughout the ITIL 4 framework, but perhaps more obviously in the support and ongoing improvement of delivery and support.

ITIL 4	KEPNERandFOURIE®
Comprehensive framework	Proven approach
Integrated governance and management	Systematic process
Continual service improvement	Improvement actions identified
Customer / consumer focused	Customer focused
Value creation through introduction and management of IT services	Value creation through root cause analysis and reduction of failure

Cloud Computing

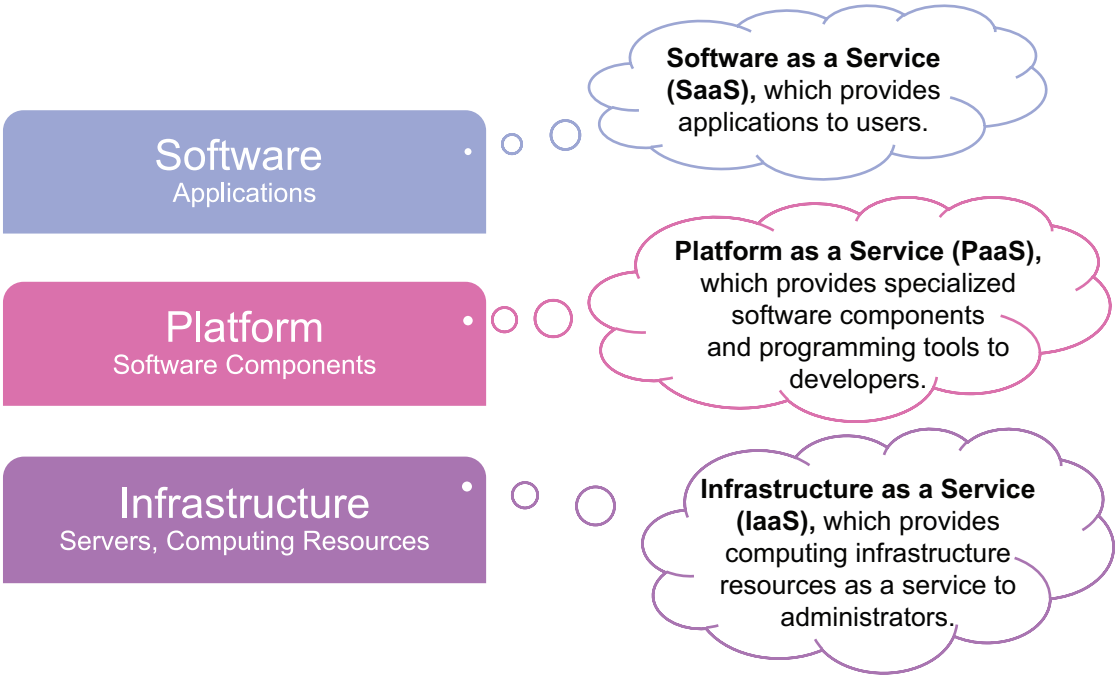
WHAT IT IS?

Cloud computing is the delivery of computing services – servers, storage, databases, networking, software, analytics, and more – over the network ("the cloud"). Cloud computing is primarily a service (business model) backed by technology, and includes architectures and standards. Organizations offering the computing services are called cloud providers and typically charge for cloud computing services based on usage.

Cloud computing is a big shift from the traditional way businesses think about IT resources. Here are the common reasons why organizations are turning to cloud computing services:

1. Cost
2. Speed
3. Global scale
4. Productivity
5. Performance
6. Reliability
7. Flexibility / Scalability

Most cloud computing services fall into three broad models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).



There are four different ways to deploy cloud computing resources:

- Public clouds are owned and operated by a third-party cloud service provider, which delivers computing resources such as servers and storage over the Internet.
- A private cloud gives a single cloud consumer organization the exclusive access to and usage of the infrastructure and computational resources.
- Hybrid clouds combine public and private clouds, bound together by technology that allows data and applications to be shared between them. Cloud computing services work a little differently, depending on the provider.
- More recently the fourth approach of a community cloud is employed. This is a multi-tenant platform which allows several companies work on the same platform, given that they have similar needs and concerns.

Comprehension: *How it relates to ITIL 4?*

Cloud computing has changed the way organizations approach sourcing IT technology, with more reliance on third-party suppliers. This has increased the importance of ITIL 4 practices managing suppliers and with the management of technology in terms of capacity and availability planning.

Utilizing cloud computing is now common and the management approaches of ITIL 4 provide mechanisms for the management of the offerings.

ITIL 4	**Cloud Computing**
Comprehensive framework	Delivery mechanism for computing services
Integrated governance and management	Technology management
Continual service improvement	Third party providers
Customer / consumer focused	Technology focused
Value creation through introduction and management of IT services	Value creation through management of technological solutions

COBIT 5

WHAT IT IS?

COBIT 5 is a comprehensive framework that assists enterprises in achieving their objectives for the governance and management of enterprise IT. It helps enterprises create optimal value from IT by maintaining a balance between realizing benefits and optimizing risk levels and use of resources.

COBIT 5 enables IT to be governed and managed in a holistic manner for the entire enterprise, taking in both the full end-to-end business and IT functional areas of responsibility, while considering the IT-related interests of internal and external stakeholders. COBIT 5 is generic, and useful for enterprises of all sizes.

Comprehension: How it relates to ITIL 4?

ITIL 4 is encompassing more of the governance and management of IT across the organization, and COBIT 5 provides a framework that relates the governance requirements to actual measurement. This provides the organization as a whole with a trusted mechanism for demonstrating compliance across the whole enterprise.

A combination of ITIL 4 providing what the requirements for governance are and COBIT providing how they can be measured will assist in a holistic approach to ensure all the requirements are identified and met.

ITIL 4	COBIT
Comprehensive framework	Comprehensive framework
Integrated governance and management	Integrated governance and management
Continual service improvement	Benefits realization
Customer / consumer focused	Customer focused
Value creation through introduction and management of IT services	Value creation through evidence based benefits realization