ITIL V4 FOUNDATION

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Agenda

Introduction

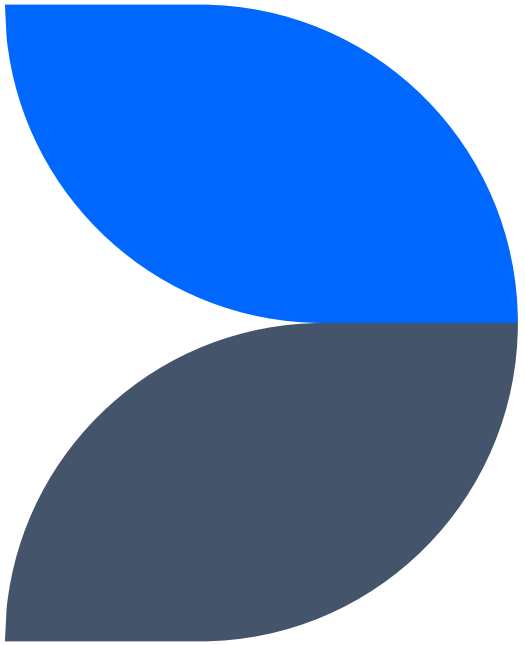
Key concepts of service management

The 4-dimensional model

ITIL Service Value System

ITIL management practices

INTRODUCTION



IT service management in the modern world

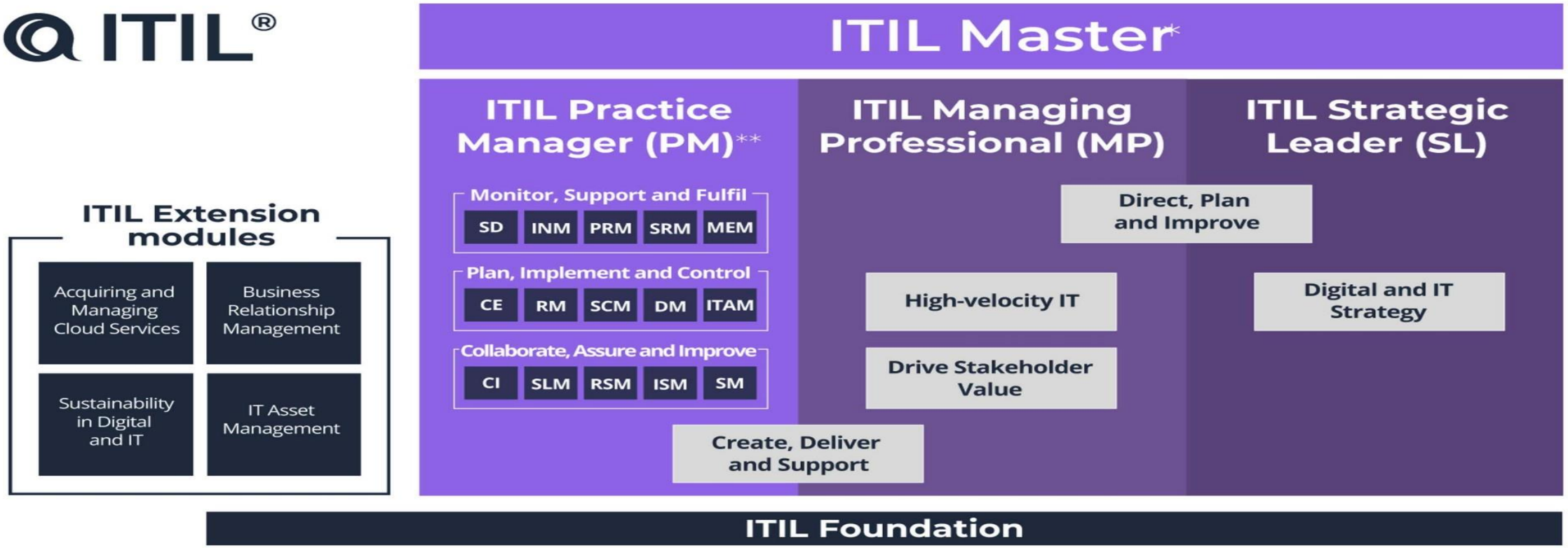
- Services are the main way that organizations create value for themselves and their customers.
- ITIL 4 brings ITIL up to date by re-shaping much of the established ITSM practices in the wider context of customer experience, value streams, and digital transformation, as well as embracing new ways of working,such as Lean, Agile, and DevOps.

The structure and benefits of the ITIL 4 framework

The key components of the ITIL 4 framework are the ITIL service value system (SVS)

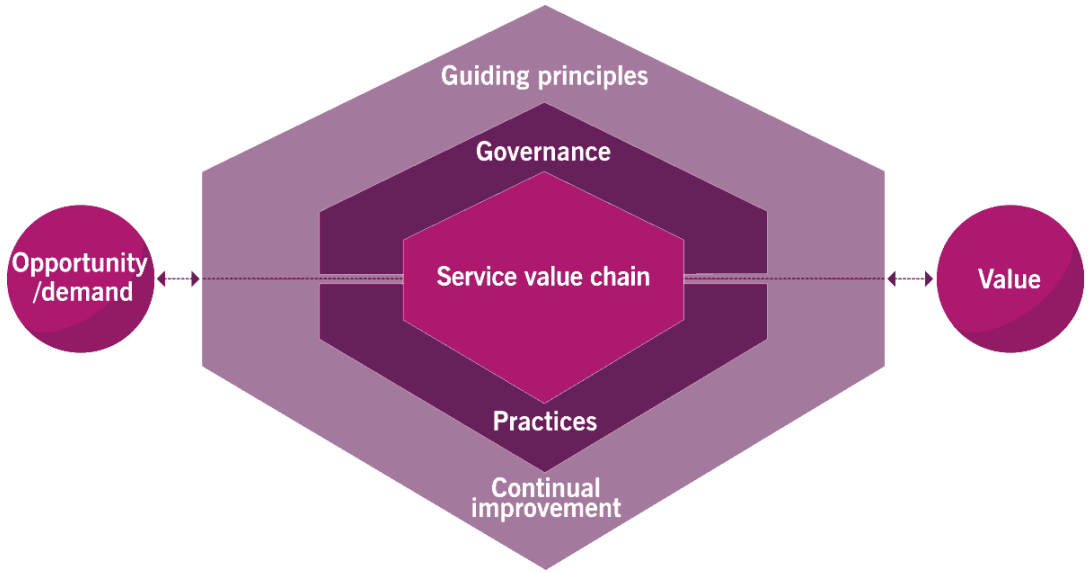
- The ITIL SVS represents how the various components and activities of the organization work together to facilitate value creation through IT-enabled services
- The ITIL SVS facilitates the integration and coordination of these components and provides a strong, unified, value-focused direction

ITIL V4 CERTIFICATION SCHEME



ITIL Service Value System

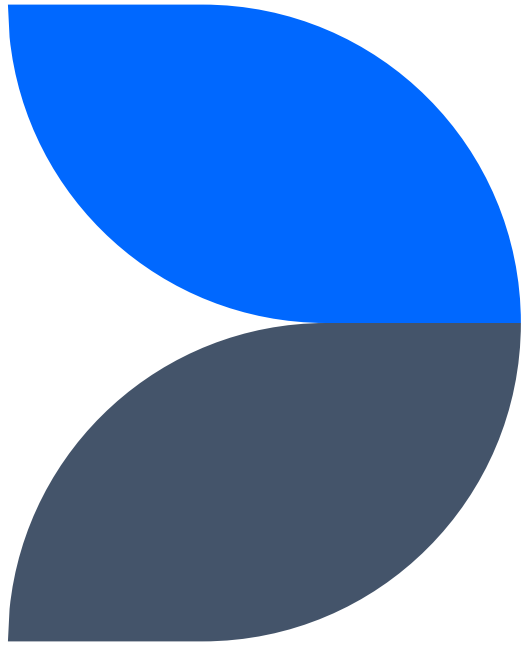
The service value system



The components of the SVS

- the ITIL service value chain
- the ITIL practices
- the ITIL guiding principles
- governance
- continual improvement.

KEY CONCEPTS OF SERVICE MANAGEMENT



Key Concepts & Definitions

The most important concepts of service management includes the following:

- the nature of value and value co-creation
- organizations, service providers, service consumers, and otherstakeholders
- products and services
- service relationships
- value: outcomes, costs, and risks.

Service management

Definition: A set of specialized organizational capabilities for enabling value for customers in the form of services. This requires an understanding of:

- the nature of value
- the nature and scope of the stakeholders involved
- how value creation is enabled through services.

Organizations, service providers, service consumers, and other stakeholders

Definition: Organization

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

Definition: Service Providers

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.

Definition: Service Consumers

When receiving services, an organization takes on the role of the service consumer. Service consumer is a generic role that is used to simplify the definition and description of the structure of service relationships. In practice, there are more specific roles involved in service consumption, such as customers, users, and sponsors. These roles can be separate or combined.

Organizations, service providers, service consumers, and other stakeholders

Definition: Customer

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

Definition: User

A person who uses services.

Definition: Service Sponsor

A person who authorizes budget for service consumption

Organizations, service providers, service consumers, and other stakeholders

Other Stakeholders: Products and services create value for stakeholders in a number of ways. Some are quite direct such as the generation of revenue, while others are more indirect such as employee experience. Consider the below table:

Stakeholder	Value for stakeholder
Service consumers	Benefits achieved; costs and risks optimized
Service provider	Funding from the consumer; business development; image improvement
Service provider employees	Financial and non-financial incentives; career and professional development; sense of purpose
Society and community	Employment; taxes; organizations' contribution to the development of the community
Charity organizations	Financial and non-financial contributions from other organizations
Shareholders	Financial benefits, such as dividends; sense of assurance and stability

Products and services

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

Definition: Service

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

Definition: Product

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

Definition: Service Offering

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

Service offerings

Key Message! *Service providers present their services to consumers in the form of service offerings, which describe one or more services based on one or more products.*

Definition: Service offerings

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

Service offerings may include:

- goods to be supplied to a consumer
- access to resources granted or licensed to a consumer under agreed terms and conditions
- service actions performed to address a consumer's needs

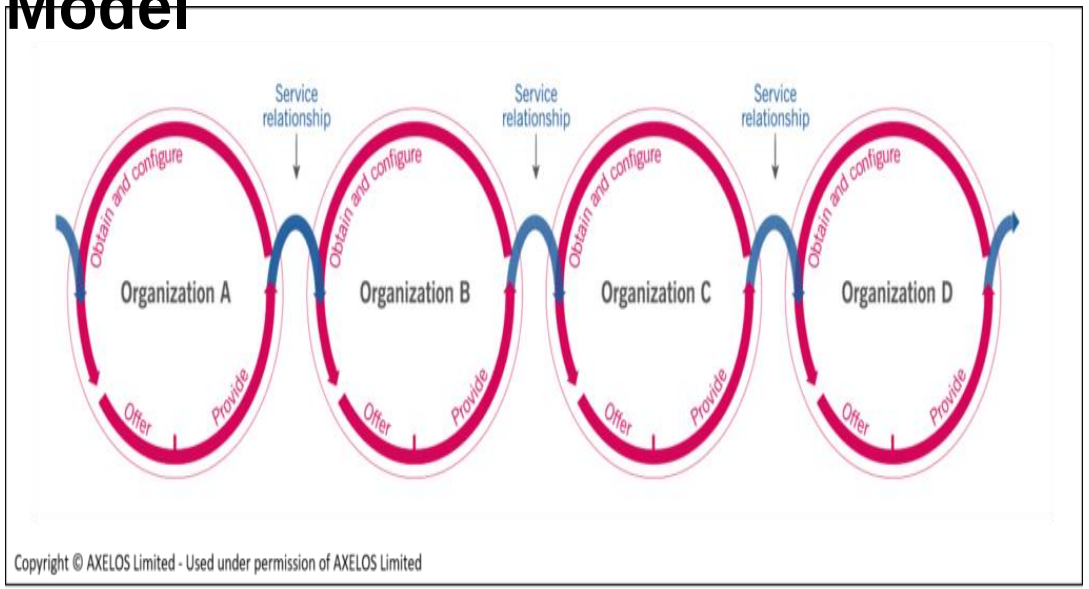
Service offerings

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 phone Physical server
Access to resources	Ownership is not transferred to the consumer Access is granted or licensed to the consumer under agreed terms and condition Access is granted to the consumer ONLY during the agreed consumption period and service terms	Access to the mobile network or network storage
Service actions	Performed by the service provider to User support to address a consumer's needs Performed according to an agreement with the consumer	User support Equipment Replacement

Service relationships

The Service Relationship Model



Key Message!

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

Service relationships

Definition: Service Relationship

A cooperation between a service provider and service consumer. Service relationships include service provision, service consumption, and service relationship management

Definition: Service Provision

Activities performed by an organization to provide services.

Definition: Service Consumption

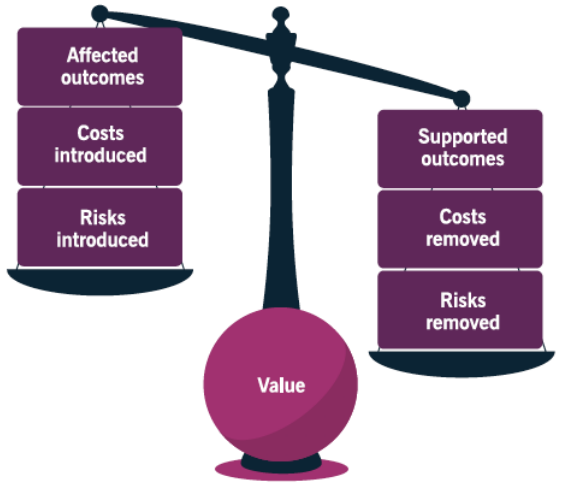
Activities performed by an organization to consume services.

Definition: Service relationship management

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

Value: outcomes, costs, and risks

The Service Relationship Model



Key Message!

Achieving desired outcomes requires resources (and therefore costs) and is often associated with risks.

Service providers help their consumers to achieve outcomes, and in doing so, take on some of the associated risks and costs

On the other hand, service relationships can introduce new risks and costs, and in some cases, can negatively affect some of the intended outcomes, while supporting others.

Value: outcomes, costs, and risks

Definition: Output

A tangible or intangible deliverable of an activity.

Definition: Outcome

A result for a stakeholder enabled by one or more outputs.

Definition: Utility

The functionality offered by a product or service to meet a particular need.

Fit for purpose. Removal of a constraint or performance or both

Definition: Warranty

Assurance that a product or service will meet agreed requirements. Fit for use. Service level, availability of continuity

Value: outcomes, costs, and risks

Definition: Costs

The amount of money spent on a specific activity or resource.

Types of costs:

- **Costs removed** from the consumer by the service (a part of the value proposition). This may include costs of staff, technology, and other resources, which the consumer does not need to provide.
- **Costs imposed** on the consumer by the service (the costs of service consumption). The total cost of consuming a service includes the price charged by the service provider (if applicable), plus other costs such as staff training, costs of network utilization, procurement, etc. Some consumers describe this as what they have to ‘invest’ to consume the service.

Value: outcomes, costs, and risks

Definition: Risks

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.

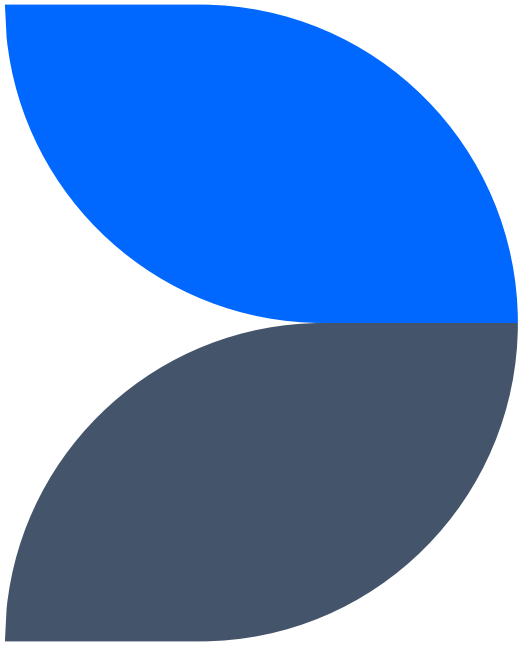
Types of Risks:

- **Risks removed** from a consumer by the service (part of the value proposition).These may include failure of the consumer's server hardware or lack of staff availability. 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.
- **Risks imposed** on the consumer by the service (risks of service consumption). An example of this would be a service provider ceasing to trade, or experiencing a security breach.

Consumers contribute to risk reduction through:

- actively participating in the definition of the requirements of the service and the clarification of its required outcomes
- clearly communicating the critical success factors(CSFs) and constraints that apply to the service
- ensuring the provider has access to the necessary resources of the consumer throughout the service relationship.

THE 4 DIMENSION MODEL



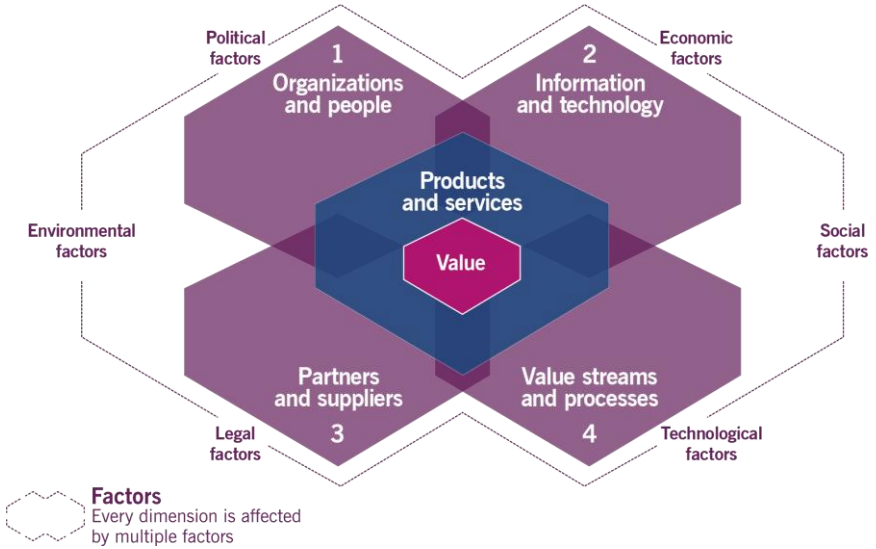
The 4-Dimensional Model

ITIL 4 outlines four dimensions of service management, from which each component of the SVS should be considered:

- organizations and people
- information and technology
- partners and suppliers
- value streams and processes.

The 4-Dimensional Model Expanded

The 4-Dimensional Model



Key Message!

ITIL defines 4 dimensions that collectively are critical to the effective and efficient facilitation of value for customers and other stakeholders in the form of products and services. These are:

- organizations and people
- information and technology
- partners and suppliers
- value streams and processes.

The four dimensions are constrained or influenced by several external factors that are often beyond the control of the SVS.

Organizations and people

Key Message! The complexity of organizations is growing, and it is important to ensure 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

People must understand the interfaces between their specializations and roles and those of others in the organization, to ensure proper levels of collaboration and coordination.

The organizations and people dimension of a service covers roles and responsibilities, formal organizational structures, culture, and required staffing and competencies, all of which are related to the creation, delivery, and improvement of a service.

Organizations and people

Important aspects of this dimension include:

- A culture that supports its objectives, capacity and competence among its workforce
- Leaders advocate values that motivate people— the key element
- Understanding the interfaces, to ensure proper levels of collaboration and coordination
- Everyone should have a focus on value creation and broad general knowledge

Information and technology

Key Message! When applied to the SVS, the information and technology dimension includes the information and knowledge necessary for the management of services, as well as the technologies required. It also incorporates the relationships between different components of the SVS, such as the inputs and outputs of activities and practices.

In relation to this dimension organizations should consider the following questions:

- What information is managed by the services?
- What supporting information and knowledge are needed to deliver and manage the services?
- How will the information and knowledge assets be protected, managed, archived, and disposed of?

Information and technology

Other Key considerations:

- Information management is a means of enabling business value
- information is generally the key output of a majority of IT services provided
- Another key consideration in this dimension is how information is exchanged between different services and service components
- The information architecture needs to be well-understood and continually optimized — taking into account such criteria as; availability, timeliness, accuracy, and relevance of the information provided.
- focus for this dimension also includes security, regulatory and compliance requirements.

Information and technology

Definition: 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.

Key characteristics of cloud computing include:

- on-demand availability (often self-service)
- network access(often internet access)
- resource pooling (often among multiple organizations)
- rapid elasticity (often automatic)
- measured service (often from service consumer’s perspective).

Partners and suppliers

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

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

Partners and suppliers

Key Message! The partners and suppliers dimension encompasses an organization's relationships with other organizations that are involved in the design, development, deployment, delivery, support, and/or continual improvement Of services. It also incorporates contracts and other agreements between the organization and its partners or suppliers. The following table illustrates relationships between organizations

Form of Cooperation	Outputs	Responsibility for the outputs	Responsibility for the outcomes	Level of formality	Examples
Goods supply	Goods supplied	Supplier	Customer	Formal supply contract/Invoice	Procurement of computer/phones
Service delivery	Service delivered	Provider	Customer	Formal agreement	Cloud computing
Service partnership	Value co-created	Shared between provider & customer	Shared between provider & customer	Shared goals	Employee onboarding between HR & IT

Relationships between organizations

Partners and suppliers

Service Integration and Management (SIAM):

- One method an organization may use to address the partners and suppliers' dimension is service integration and management (SIAM)
- This involves the use of a specially established integrator to ensure that service relationships are properly coordinated.
- Service integration and management may be kept within the organization but can also be delegated to a trusted partner.

Definition: Cloud computing: “As a Service”

A bundle of goods and services into a single product offering that can be consumed as a utility, and is typically accounted for as operating expenditure

Value streams, processes & external factors

Definition: Value stream

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

Definition: Process

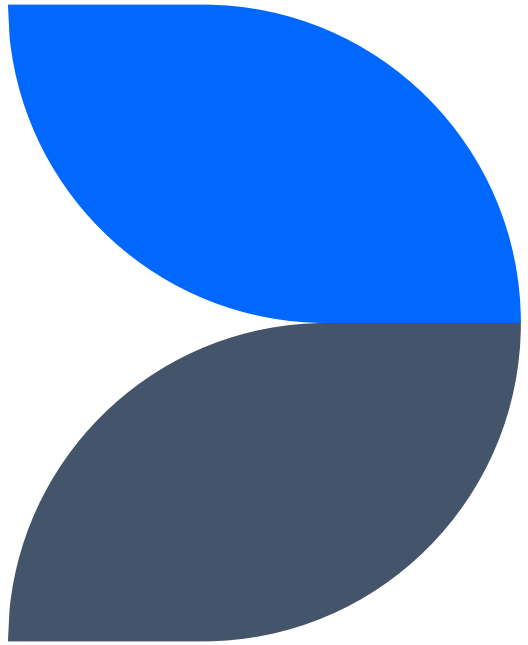
A set of interrelated or interacting activities that transform inputs into outputs. A process takes one or more defined inputs and turns them into defined outputs. Processes define the sequence of actions and their dependencies.

Key Point! External factors

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

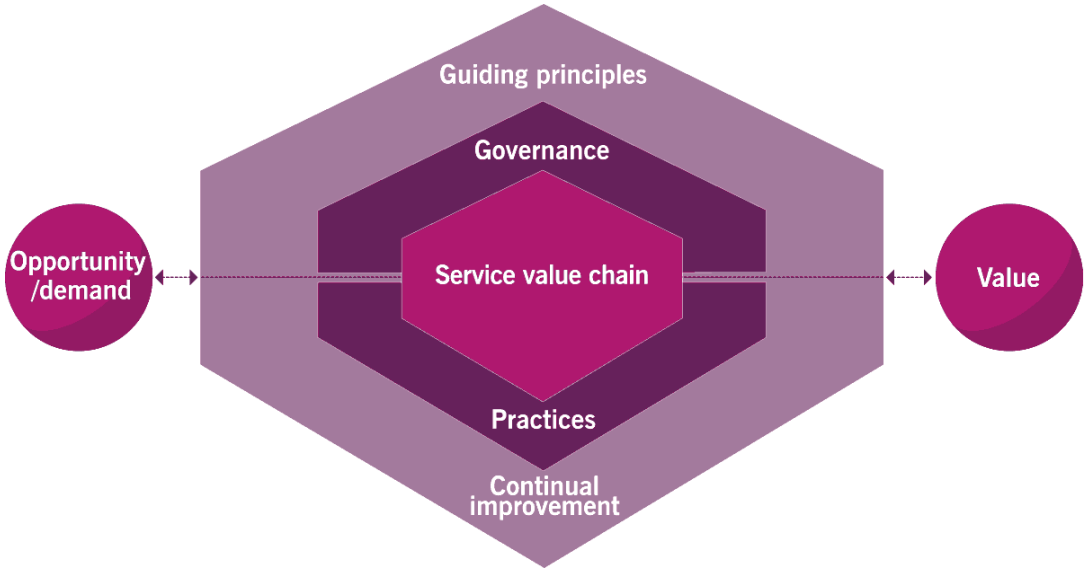
PESTLE is an acronym for the political, economic, social, technological, legal, and environmental factors that constrain or influence how a service provider operates.

ITIL SERVICE VALUE SYSTEM



ITIL Service Value System (SVS)

The service value system



Key Message!

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

Each organization’s SVS has interfaces with other organizations, forming an ecosystem that can in turn facilitate value for those organizations, their customers, and other stakeholders

ITIL Service Value System (SVS)

The **ITIL SVS** includes the following components:

- **Guiding principles:** Recommendations that can guide an organization in all circumstances, regardless of changes in its goals, strategies, type of work, or management structure.
- **Governance:** The means by which an organization is directed and controlled.
- **Service value chain:** A set of interconnected activities that an organization performs to deliver a valuable product or service to its consumers and to facilitate value realization.
- **Practices:** Sets of organizational resources designed for performing work or accomplishing an objective.
- **Continual improvement:** A recurring organizational activity performed at all levels to ensure that an organization's performance continually meets stakeholders' expectations. ITIL 4 supports continual improvement with the ITIL continual improvement model.

Organizational agility and organizational resilience

Organizational resilience and agility includes the following:

- Successful organization possesses organizational agility to support internal changes, and organizational resilience to withstand and even thrive in changing external circumstances.
- Organizational resilience is the ability of an organization to anticipate, prepare for, respond to, and adapt to both incremental changes and sudden disruptions from an external perspective.
- The ITIL SVS provides the means to achieve organizational agility and resilience and to facilitate the adoption of a strong unified direction, focused on value and understood by everyone in the organization. It also enables continual improvement throughout the organization.

Opportunity, demand, and value

Key Message! Opportunity & Demand

Opportunity and demand trigger activities within the ITIL SVS, and these activities lead to the creation of value. Opportunity and demand are always, entering into the system, but the organization does not automatically accept all opportunities or satisfy all demands

Definition: Opportunity

Represents options or possibilities to add value for stakeholders or otherwise improve the organization. There may not be demand for these opportunities yet, but they can still trigger work within the system.

Definition: Demand

Demand represents the need or desire for products and services from internal and external customers.

The ITIL guiding principles

Principle	Description
Focus on value	Map, directly or indirectly, to value for the stakeholders.
Start where you are	Do not build something new without leverage what is already available .
Progress iteratively with feedback	Organize work into smaller, manageable sections and use feedback before, throughout, and after each iteration.
Collaborate and promote visibility	Working together across boundaries produces results that have greater buy-in, more relevance to objectives, and increased likelihood of long-term success.
Think and work holistically	Consider all aspects of the ITIL SVS vis-a-vis the 4-dimensional model
Keep it simple and practical	Always use outcome-based thinking to produce practical solutions that deliver results.
Optimize and automate	Eliminate anything that is truly wasteful and use technology to achieve whatever it is capable of. Human intervention should only happen where it really contributes value.

Governing bodies and governance

Key Message!

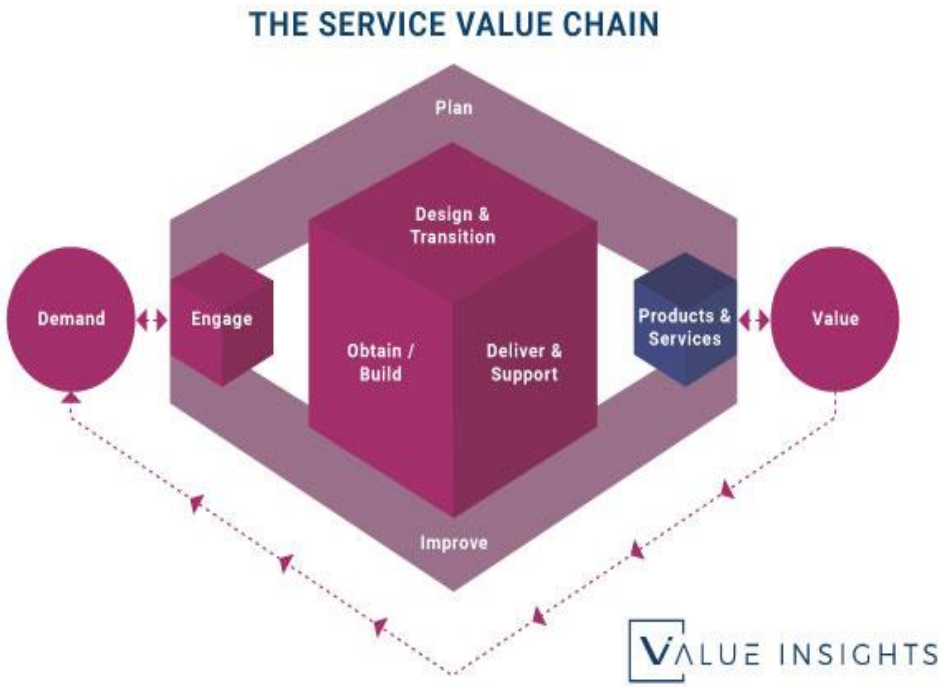
Every organization is directed by a governing body, i.e. a person or group of people who are accountable at the highest level for the performance and compliance of the organization. The governing body is accountable for the organization's compliance with policies and any external regulations. Organizational governance is a system by which an organization is directed and controlled.

Governance is realized through the following activities:

- **Evaluate:** The evaluation of the organization, its strategy, portfolios, and relationships with other parties.
- **Direct:** The governing body assigns responsibility for, and directs the preparation and implementation of, organizational strategy and policies.
- **Monitor:** The governing body monitors the performance of the organization and its practices, products, and services.

The THE service value chain(SVC)

The service value chain



Key Message!

The six value chain activities are:

- plan
- improve
- engage
- design and transition
- obtain/build
- deliver and support.

These activities represent the steps an organization takes in the creation of value. Each activity transforms inputs into outputs.

The ITIL service value chain(SVC)

Key Message!

To convert inputs into outputs, the value chain activities use different combinations of ITIL practices (sets of resources for performing certain types of work), drawing on

internal or third-party resources, processes, skills, and competencies as required.

Regardless of which practices are deployed, there are some common rules when using the service value chain:

- All incoming and outgoing interactions with parties external to the value chain are performed via **engage**.
- All new resources are obtained through **obtain/build**.
- Planning at all levels is performed via **plan**.

Service Value Chain

CERTIFICATION PLANNER

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

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

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

Obtain/build
To ensure that service components are available when and where they are needed and that the components meet agreed specifications.

Design & transition
To ensure that products and services continually meet stakeholder expectations for quality, costs and time-to-market.

Deliver & support
To ensure that services are delivered and supported according to agreed specifications and stakeholders' expectations.

Plan

Key message!

The purpose of the plan value chain activity is to ensure a shared understanding of the vision, current status, and improvement direction for all four dimensions and all products and services across the organization.

Key inputs

- policies, requirements, and constraints provided by the organization's governing body
- consolidated demands and opportunities provided by **engage**
- value chain performance information, improvement status reports, and improvement initiatives from **improve**
- knowledge and information about new and changed products and services from design and transition, and **obtain/build**
- knowledge and information about third-party service components from **engage.**

Plan

Key outputs

- strategic, tactical, and operational plans
- portfolio decisions for **design and transition**
- architectures and policies for **design and transition**
- improvement opportunities for **improve**
- a product and service portfolio for **engage**
- contract and agreement requirements for **engage**.

Improve

Key message!

The purpose of the improve value chain activity is to ensure continual improvement of products, services, and practices across all value chain activities and the four dimensions of service management.

Key inputs

- product and service performance information provided by **deliver and support**
- stakeholders' feedback provided by **engage**
- performance information and improvement opportunities provided by all value chain activities
- knowledge and information about new and changed products and services from **design and transition**, and **obtain/build**
- knowledge and information about third-party service components from **engage**

Improve

Key outputs

- improvement initiatives for all value chain activities
- value chain performance information for **plan** and the governing body
- Improvement status reports for all value chain activities
- contract and agreement requirements for **engage**
- service performance information for **design and transition**

Engage

Key message!

The purpose of the engage value chain activity is to provide a good understanding of stakeholder needs, transparency, and continual engagement and good relationships with all stakeholders.

Key inputs

- a product and service portfolio provided by **plan**
- high-level demand for services and products provided by internal and external customers
- detailed requirements for services and products provided by customer
- requests and feedback from customers
- incidents, service requests, and feedback from users
- information on the completion of user support tasks from **deliver and support**

Engage

Key inputs

- marketing opportunities from current and potential customers and users
- cooperation opportunities and feedback provided by partners and suppliers
- contract and agreement requirements from all value chain activities
- knowledge and information about new and changed products and services from **design and transition**, and obtain/build
- knowledge and information about third-party service components from suppliers and partners
- product and service performance information from **deliver and support**
- improvement initiatives from **improve**
- improvement statusreports from **improve**.

Engage

Key outputs

- consolidated demands and opportunities for **plan**
- product and service requirements for **design and transition**
- user support tasks for **deliver and support**
- improvement opportunities and stakeholders' feedback for **improve**
- change or project initiation requests for **obtain/build**
- contracts and agreements with external and internal suppliers and partners for **design and transition**, and **obtain/build**
- knowledge and information about third-party service components for all value chain activities
- service performance reports for customers.

Design and transition

Key message!

The purpose of the design and transition value chain activity is to ensure that products and services continually meet stakeholder expectations for quality, costs, and time to market.

Key inputs

- portfolio decisions provided by **plan**
- architectures and policies provided by **plan**
- product and service requirements provided by **engage**
- improvement initiatives provided by **improve**
- improvement status reports from **improve**
- service performance information provided by **deliver and support**, and **improve**
- service components from **obtain/build**

Design and transition

Key inputs

- knowledge and information about third-party service components from **engage**
- knowledge and information about new and changed products and services from **obtain/build**
- contracts and agreements with external and internal suppliers and partners provided by **engage**

Key outputs

- requirements and specifications for **obtain/build**
- contract and agreement requirements for **engage**
- new and changed products and services for **deliver and support**
- knowledge and information about new and changed products and services to all value chain activities
- performance information and improvement opportunities for **improve**

Obtain/build

Key message!

The purpose of the obtain/build value chain activity is to ensure that service components are available when and where they are needed, and meet agreed specifications.

Key inputs

- architectures and policies provided by **plan**
- contracts and agreements with external and internal suppliers and partner provided by **engage**
- goods and services provided by external and internal suppliers and partners
- requirements and specifications provided by **design and transition**
- improvement initiatives provided by **improve**
- Improvement status reports from **improve**
- change or project initiation requests provided by **engage**

Obtain/build

Key inputs

- change requests provided by **deliver and support**
- knowledge and information about new and changed products and services from **design and transition**
- knowledge and information about third-party service components from **engage**.

Key outputs

- service components for **deliver and support**
- service components for **design and transition**
- knowledge and information about new and changed service components to all value chain activities
- contract and agreement requirements for **engage**
- performance information and improvement opportunities for **improve.**

Deliver and support

Key message!

The purpose of the deliver and support value chain activity is to ensure that services are delivered and supported according to agreed specifications and stakeholders' expectations.

Key inputs

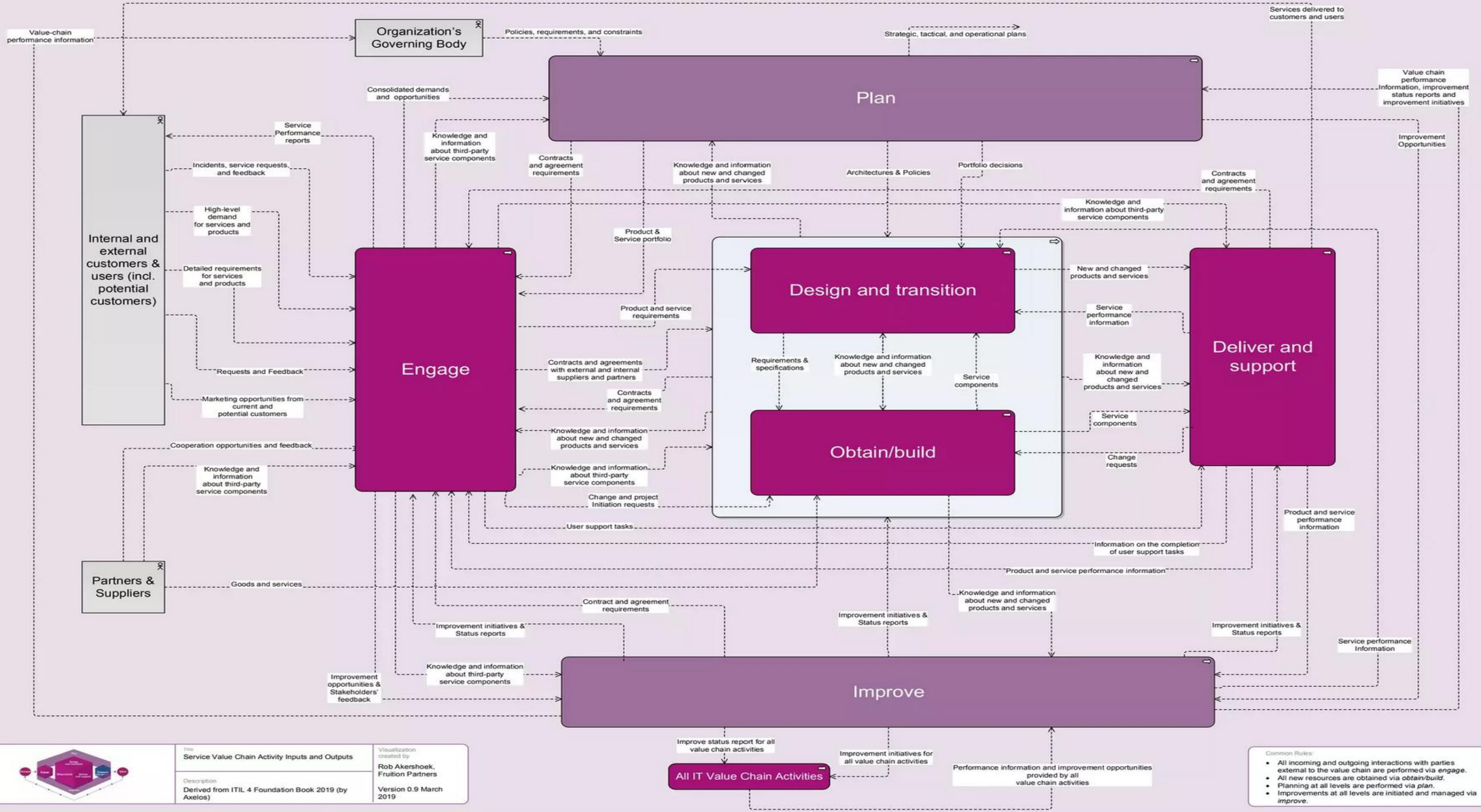
- new and changed products and services provided by **design and transition**
- service components provided by **obtain/build**
- improvement initiatives provided by **improve**
- Improvement status reports from **improve**
- user support tasks provided by **engage**
- knowledge and information about new and changed service components and services from **design and transition,** and **obtain/build**
- knowledge and information about third-party service components from **engage.**

Deliver and support

Key outputs

- services delivered to customers and users
- information on the completion of user support tasks for **engage**
- product and service performance information for **engage** and **improve**
- improvement opportunities for **improve**
- contract and agreement requirements for **engage**
- change requests for **obtain/build**
- service performance information for **design and transition**

The ITIL 4 Service Value Chain Activities - Inputs & Outputs



Value Chain Activity	Practices	Roles	Activities
Demand		Sales Personnel, Sales Management	It is noticed that email is not being received from external sources. The sales team is unable to respond to customer needs, slowing and placing additional risk on the process.
Engage	Service Desk, Incident Management	Sales Management, Service Desk Management	The sales manager calls the service desk and describes the issue. The service desk agent agrees this is a priority 2 incident, and the manager is informed of the agreed resolution time. The incident is logged by the service desk agent.
Deliver & Support	Service Desk, Incident Management	Service Desk Agent, Email Administrator	The incident is escalated to the email support team
Deliver & Support, Improve	Incident Management, Organizational Change Management, SACM, IT Asset Management, CSI	Email administrator	The email administrator identifies that the database transaction log has exceeded its capacity and increases available disk space. This is a standard change, so the engineer needs no additional approval. Information required to extend the log volume has been extended. The email administrator updates the incident management system and marks the case as resolved, then considers whether the incident could have been predicted or resolved more quickly.
Engage	Service Desk, Incident Management	Service Desk Agent, Sales Manager	The service desk agent contacts the sales manager to check that everything is working properly, then closes the incident.
Value		Sales Manager, Sales Team	Email functionality is restored, and the sales process can proceed as normal.
Engage, Improve	Service Desk, Incident Management, CSI	Sales Manager, Service Desk Manager	A brief satisfaction survey is emailed to the sales manager, which they complete and return. The scores are used to identify trends and the comments are passed to the service desk manager for consideration.

The ITIL service value chain(SVC)

Example of a service value chain, its 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 specialized resources and techniques:

- business Analysis
- development
- testing
- release and deployment
- support

The ITIL service value chain(SVC)

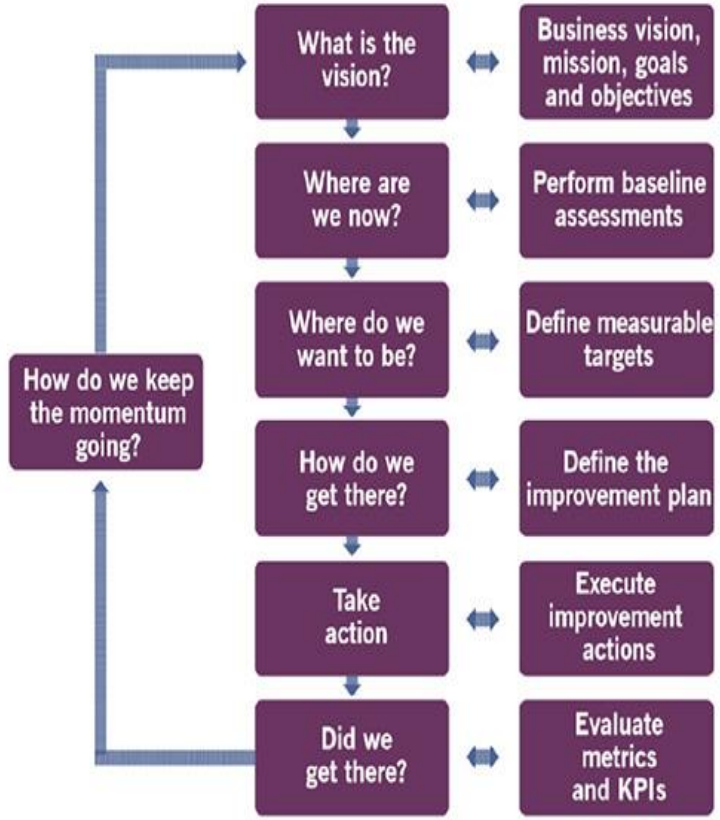
ITSM in the modern world: Agile ITSM

For an organization to be successful, it must be able to adapt to changing circumstances while remaining functional and effective. IT is essential for all organizations; IT and IT management are expected to be Agile. Agile software development usually includes:

- breaking development work into small increments and iterations development
- establishing product-based cross-functional teams
- visually presenting (Kanban) and regularly discussing (daily stand-ups) work progress
- presenting a working (at least, the minimum viable) software to the stakeholders at the end of each iteration.

Continual improvement

The continual improvement model



Key Message!

The continual improvement model applies to the SVS in its entirety, as well as to all of the organization's products, services, service components, and relationships.

To support continual improvement at all levels, the ITIL SVS includes:

- the ITIL continual improvement model, which provides organizations with a structured approach to implementing improvements
- the improve service value chain activity, which embeds continual improvement into the value chain
- the continual improvement practice, supporting organizations in their day-to-day improvement efforts.

Steps of the continual improvement model

Key message! STEP 1: What is the vision?

Each improvement initiative should support the organization's goals and objectives. The first step of the continual improvement model is to define the vision of the initiative. This provides context for all subsequent decisions and links individual actions to the organization's vision for the future.

This step focuses on two key areas:

- The organization's vision and objectives need to be translated for the specific business unit, department, team, and/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

Steps of the continual improvement model

The work within this step should ensure that:

- the high-level direction has been understood
- the planned improvement initiative is described and understood in that context
- 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 improvement 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 non-value-adding activities might become the sole focus of improvements.

Steps of the continual improvement model

Key message! STEP 2: Where are we now?

The success of an improvement initiative depends on a clear and accurate understanding of the starting point (Point A) and the impact of the initiative. This step focuses on the following areas:

- **Current state assessment:** This is an assessment of existing services, including the users' perception of value received, people's competencies and skills, the processes and procedures involved, and/or the capabilities of the available technological solutions.
- **The organization's culture:** the prevailing values and attitudes across all stakeholder groups, also needs to be understood to decide what level of organizational change management is required.
- **Objective measurement:** an accurate understanding of the issues associated with the current state and, once the initiative is implemented, enable proper measurement of the level of improvement achieved by comparison with the initial state.

Steps of the continual improvement model

Key message! STEP 3: Where do we want to be?

Just as the previous step (Step 2) describes Point A on the improvement journey, Step 3 outlines what Point B, the target state for the next step of the journey, should look like. A journey cannot be mapped out if the destination is not clear.

- **Gap analysis:** This evaluates the scope and nature of the distance to be travelled from the starting point to the achievement of the initiative's vision.
- **Define S.M.A.R.T goals:** initial vision of the initiative is aspirational and may never be achieved in full. Improvement is the goal, not perfection.
- **Objective measurement:** 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. 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

Steps of the continual improvement model

Key message! Step 5: Take action

In Step 5 the plan for the improvement is acted upon. This could involve a traditional waterfall-style approach, but it could be more appropriate to follow an Agile approach by experimenting, iterating, changing directions, or even going back to previous steps. The following articulates the focus areas in this step:

- **Change Management:** 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.
- **Objective Measurement:** there needs to be continual focus on measuring progress towards the vision and managing risks, as well as ensuring visibility and overall awareness of the initiative.
- **Employ ITIL Practices:** such as organizational change management; measurement and reporting; risk management and, of course, continual improvement are important factors in achieving success in this step.

Steps of the continual improvement model

Key message! Step 6: Did we get there?

Too often, once an improvement plan is set in motion, it is assumed that the expected benefits have been achieved, and that attention can be redirected to the next initiative. In reality, the path to improvement is filled with various obstacles, so success must be validated. Consider the below when evaluating the improvement:

- **Change Management:** 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.
- **Objective Measurement:** there needs to be continual focus on measuring progress towards the vision and managing risks, as well as ensuring visibility and overall awareness of the initiative.
- **Employ ITIL Practices:** such as organizational change management; measurement and reporting; risk management and, of course, continual improvement are important factors in achieving success in this step.

Steps of the continual improvement model

Key message! Step 7: How do we keep the momentum going?

If the improvement has delivered the expected value, the focus of the initiative should shift to marketing these successes and reinforcing any new methods introduced. This is to ensure that the progress made will not be lost and to build support and momentum for the next improvements. The following must be taken into account to sustain the improvement over time:

- **Change & Knowledge Management:** should be used to embed the changes in the organization and ensure that the improvements and changed behaviors are not at risk of reversion
- **Work Process Integration:** leaders **and** managers should help their teams to truly integrate new work methods into their daily work and institutionalize new behaviors.
- **Transparency**: If the expected results of the improvement were not achieved, stakeholders need to be informed of the reasons for the failure of the initiative.

principles

Following the continual improvement model, an organization may significantly

benefit from applying the ITIL guiding principles.

- All the principles are applicable and relevant at every step of an improvement initiative
- Some of the guiding principles are especially relevant to specific steps of the continual improvement model.
- Applying these principles at every step of an improvement increases the chances for success of the steps and the overall improvement initiative
- Continual improvement is not only an integral part of Lean, but also Agile (retrospectives), DevOps (continual experimentation and learning, and mastery),and other frameworks.

principles

CSI It is one of the key components of the ITIL SVS, providing, along with the guiding principles, a solid platform for successful service management.

The table below shows The steps of the continual improvement model linked to the most relevant ITIL guiding principles:

Guiding Principles / Continual Improvement	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	×			×	×		
Where are we now		×		×			
Where do we want to be			×		×	×	×
How do we get there			×	×	×	×	
Take action	×		×	×			
Did we get there?	×			×	×		
How do we keep the momentum ongoing?	×			×	×		×

ITIL management practices

Key message

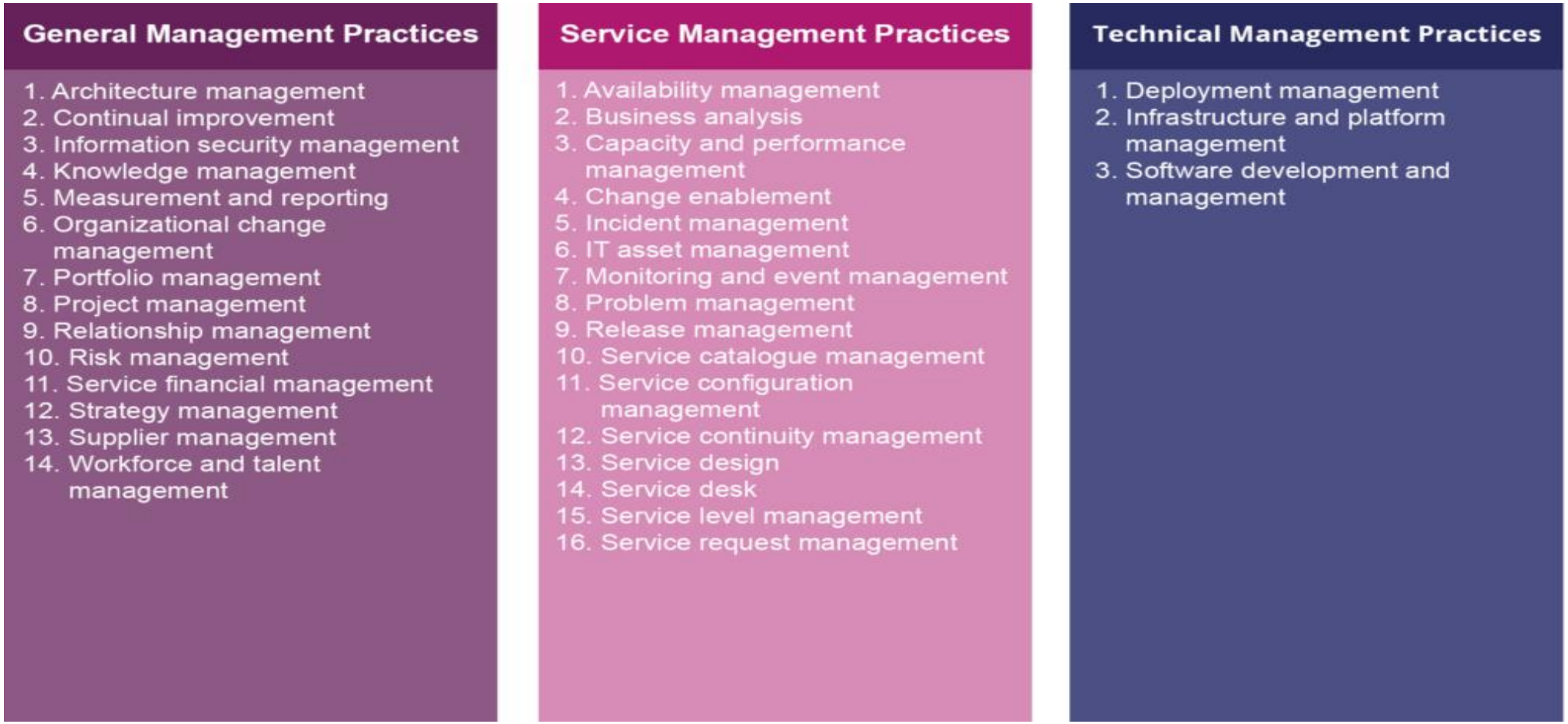
In ITIL, a management practice is a set of organizational resources designed for performing work or accomplishing an objective. The origins of the practices are as follows:

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

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

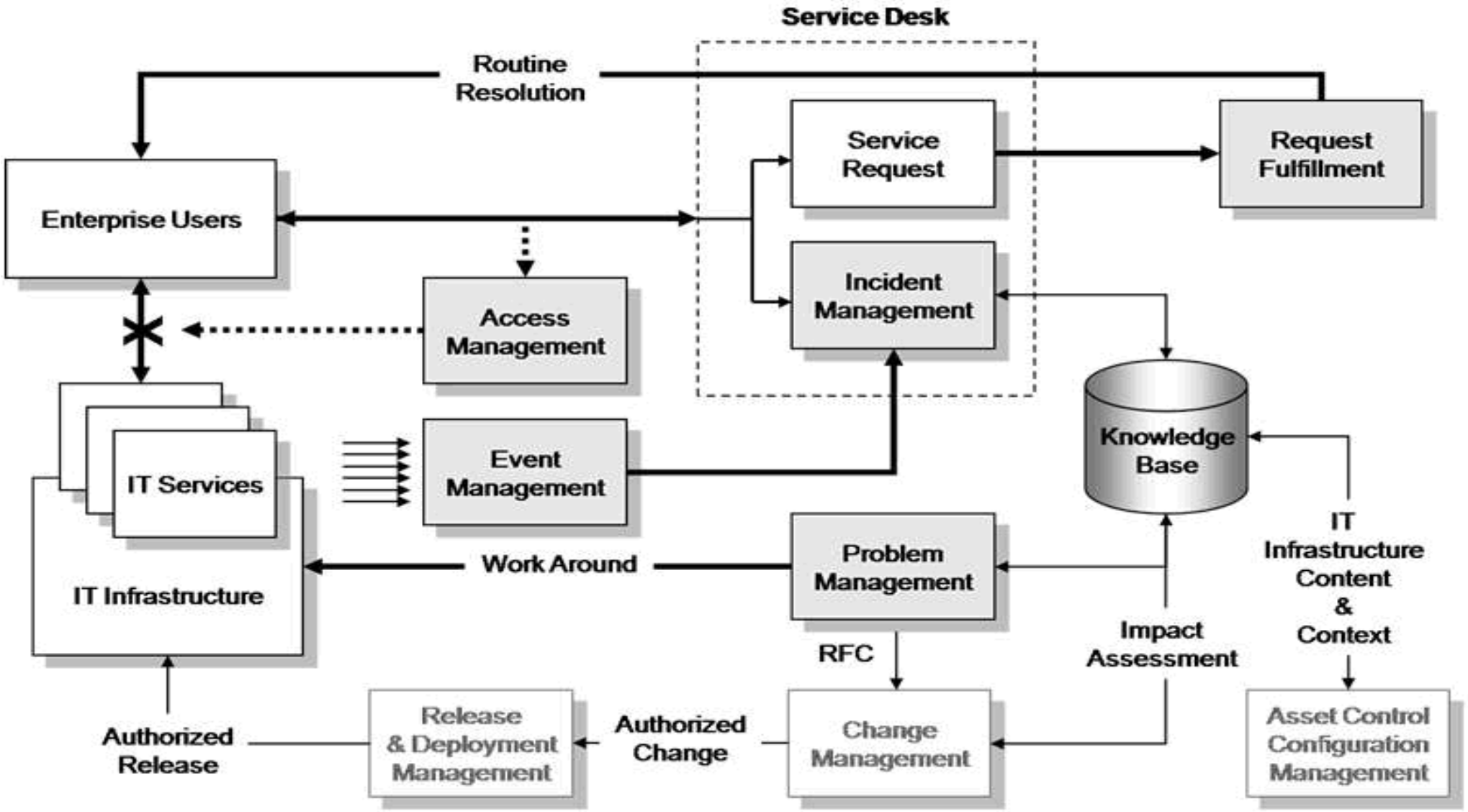
Technical management: practices have been adapted from technology management domains for service management purposes by expanding or shifting their focus from technology solutions to IT services.

ITIL management practices



We will not discuss allof the ITIL management.practices during this course

Service Operation Process Model



IT asset management

Types of asset management:

- **IT asset management (ITAM):** specifically aimed at managing the lifecycles and total costs of IT equipment and infrastructure.
- **Software asset management (SAM):**specifically aimed at managing the acquisition, development, release, deployment, maintenance, and eventual retirement of software assets.

Features of asset management:

- contributes to the visibility of assets and their value
- requires accurate inventory information, which it keeps in an asset register
- Must interface with other practices including service configuration management, incident management, change control, and deployment management
- IT asset management helps to optimize the use of valuable resources
- simplifies the maintenance about software and hardware license information

IT asset management

Features of asset management:

- Hardware assets must be labelled for clear identification to help protect them from theft, damage, and data leakage
- Hardware assets may also be subject to regulatory requirements, such as the EU Waste Electrical and Electronic Equipment Directive
- Software assets must be protected from unlawful copying, which could result in unlicensed use
- Cloud-based assets must be assigned to specific products or groups so that costs can be managed.
- Client assets must be assigned to individuals who take responsibility for their care
- Processes are needed to manage lost or stolen devices, and tools may be needed to erase sensitive data

IT asset management

Features of asset management:

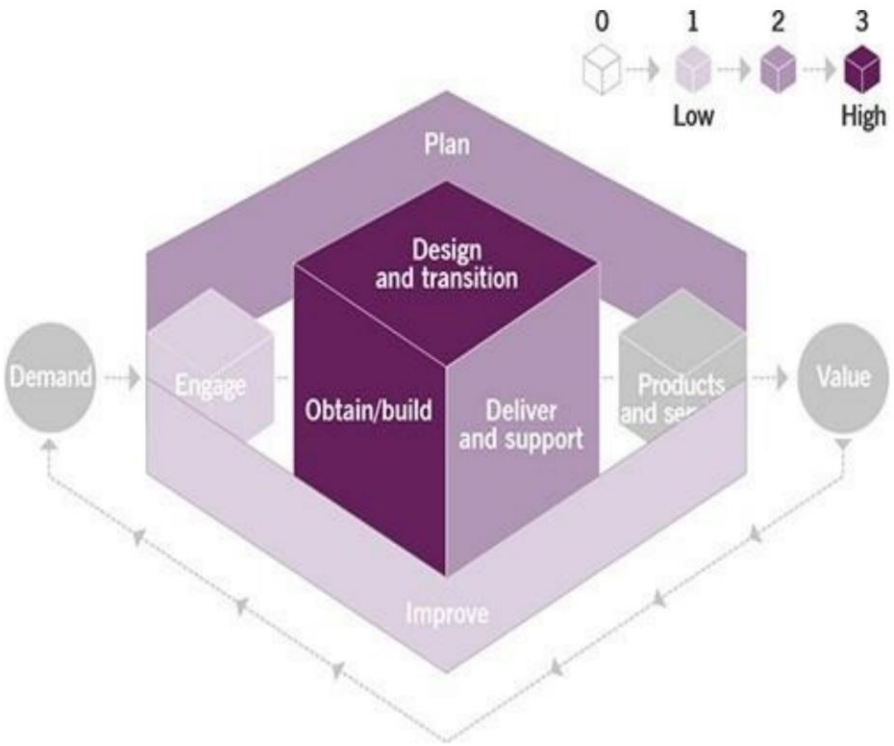
- IT asset register must be combined (or federated) with the information stored in a configuration management system (CMS).

Activities of asset management:

- Define, populate, and maintain the asset register
- Control the asset lifecycle in collaboration with other practices
- Provide current and historical data, reports, and support to other practices
- Audit assets, related media, and conformity (particularly with regulations, and licence terms and conditions)

IT asset management

contribution of IT asset management to the service value chain



- **Plan:** IT asset management is a strategic practice that helps the organization to understand and manage cost and value.
- **Improve:** All improvements efforts must consider the impact on IT assets
- **Engage:** There may be some demand for IT asset management from stakeholders.
- **Design and transition:** This value chain activity changes the status of IT assets, and so drives most IT asset management activity.
- **Obtain/build:** IT asset management supports asset procurement to ensure that assets are traceable from the beginning of their lifecycle.

Service desk

Key message!

The purpose of the service desk practice is to capture demand for incident resolution and service requests. It should also be the entry point and single point of contact for the service provider with all of its users. The following are key characteristics of service desk:

- Service desks provide a clear path for users to report issues, queries, and requests, and have them acknowledged, classified, owned, and actioned.
- The focus of the service desk is to provide support for ‘people and business’ rather than simply technical issues.
- Support and development teams need to work in close collaboration with the service desk to present and deliver a ‘joined up’ approach to users and customers.
- Service desk has a major influence on user experience and how the service provider is perceived by the users.
- Service desk require training on empathy, effective communication, business acumen and emotional intelligence, incident analysis and prioritization.

Service desk

Service desk channels

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

- Phone calls, which can include specialized technology, such as interactive voice response (IVR), conference calls, voice recognition, and others
- Service portals and mobile applications, supported by service and request catalogues, and knowledge bases
- AI, robotic process automation (RPA) enabled chat, through live chat and chatbots
- Email for logging and updating, and for follow-up surveys and confirmations.
- Walk-in service desks are becoming more prevalent in some sectors, e.g., higher education
- Text and social media messaging
- Public and corporate social media and discussion forums

Service desk

Types of service desk

Service desks can be setup in different ways depending on set services offered, their scope, set of possibilities and limitations. Let's look more in detail about them:

- **Local service desk:** Located within or physically closure to the end user community that it serves.
- **Centralized service desk:** Bigger companies usually consider having a centralized helpdesk (combining two or more local desks) to serve multiple users across several physical locations
- **Virtual service desk:** This gives the feel of a single, centralized service desk which could be in any number or type of geographical or structural location

'***Follow the Sun***' *approach in which call handled at one geographical location is handed over to another geographical location when normal business hours are over and issue is still unresolved. This kind of model gives 24 hours coverage at relatively low cost.*

Service desk

Benefits of service desk

The following are attendant benefits of a service desk:

- Quality of service and fast turnaround time
- Improved customer satisfaction index
- Improved communication
- Better managed infrastructure and controls
- Single point of contact for all queries
- Offers a seamless resolution experience
- Improved productivity of service agents
- Better management and organization of service requests
- Tracking and resolution of incidents in real time
- It works beyond break-fix support and helps to prevent incidents occurring in future
- Focus on overall process improvement
- Allows to develop proactively solutions for long term
- Helps to collaborate with agents more effectively

Service desk

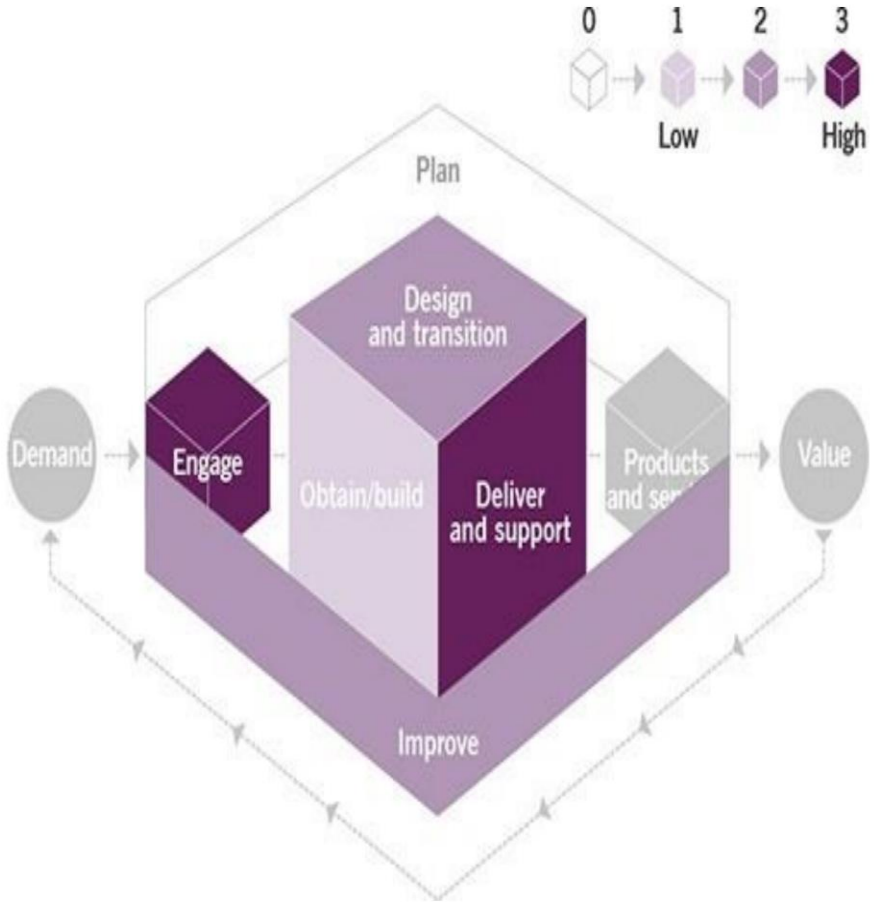
service desk tools

The below are a number of tools used by the service desk:

- Intelligent telephony systems, incorporating computer-telephony integration,
- IVR, and automatic call distribution
- Workflow systems for routing and escalation
- Workforce management and resource planning systems
- A knowledge base
- Call recording and quality control
- Remote access tools
- Dashboard and monitoring tools
- Configuration managementsystems

Service desk

contribution of service desk management to the SVC



- **Improve:** Service desk activities are constantly monitored and evaluated to support continual improvement, alignment, and value creation. Feedback from users is collected by the service desk to support continual improvement.
- **Engage:** The service desk is the main channel for tactical and operational engagement with users.
- **Design and transition:** The service desk provides a channel for communicating with users about new and changed services. Service desk staff participate in release planning, testing, and early life support.
- **Obtain/Build:** Service desk staff can be involved in acquiring service components used to fulfil service requests and resolve incidents
- **Deliver and support:** The service desk isthe coordination point for managing incidents and service requests.

Service request management

Key message!

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

Definition: **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.

Each service request may include one or more of the following:

- request for a service delivery action (toner replacement)
- request for provision of a resource or service (laptop request)
- request for information (how to convert word to pdf)
- a request for access to a resource or service (access to a server)
- feedback, compliments, and complaints

Service request management

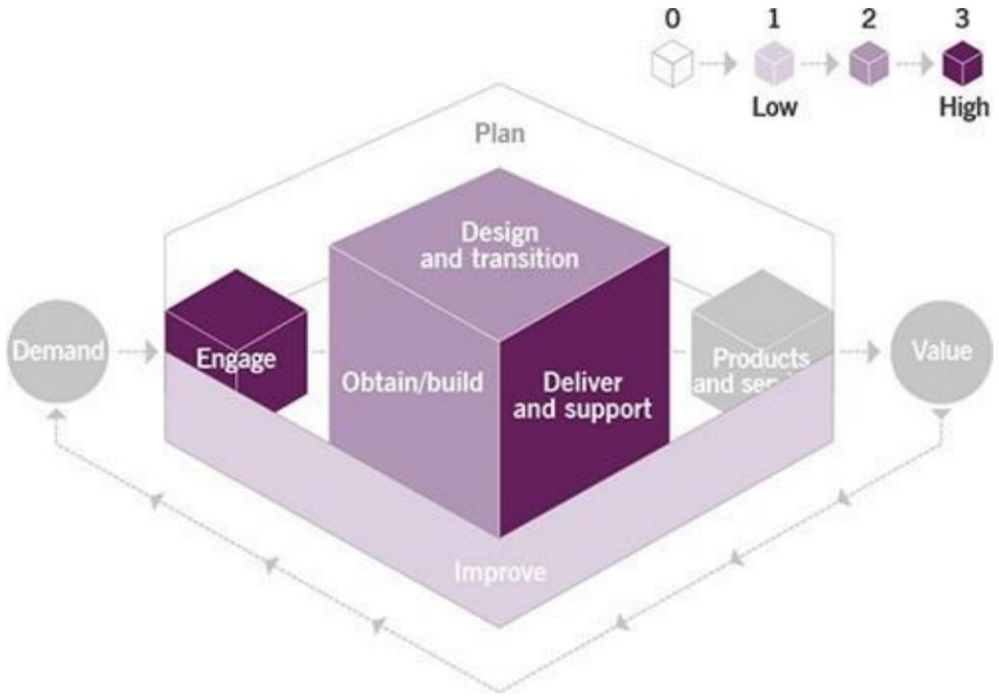
Service request Critical Success Factors (CSF)

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 advantage of automation.
- Policies and workflows should be included for the documenting and redirecting of any requests that are submitted as service requests, but which should actually be managed as incidents or changes

Service request management

contribution of service request management to the SVC



- **Improve:** Service request management can provide a channel for improvement initiatives, compliments, and complaints from users.
- **Engage:** Service request management includes regular communication to collect user-specific requirements, set expectations, and to provide status updates.
- **Design and transition:** Standard service components may be transitioned to the, live environment through service request fulfilment.
- **Obtain/Build:** Acquisition of pre-approved service components may be fulfilled through service requests.
- **Deliver and support:** Service request management makes a significant contribution to normal service delivery. This activity of the value chain is mostly concerned with ensuring users continue to be productive, and sometimes depends heavily on fulfilment of their requests

Incident management

Key message!

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

Definition: **Incident**

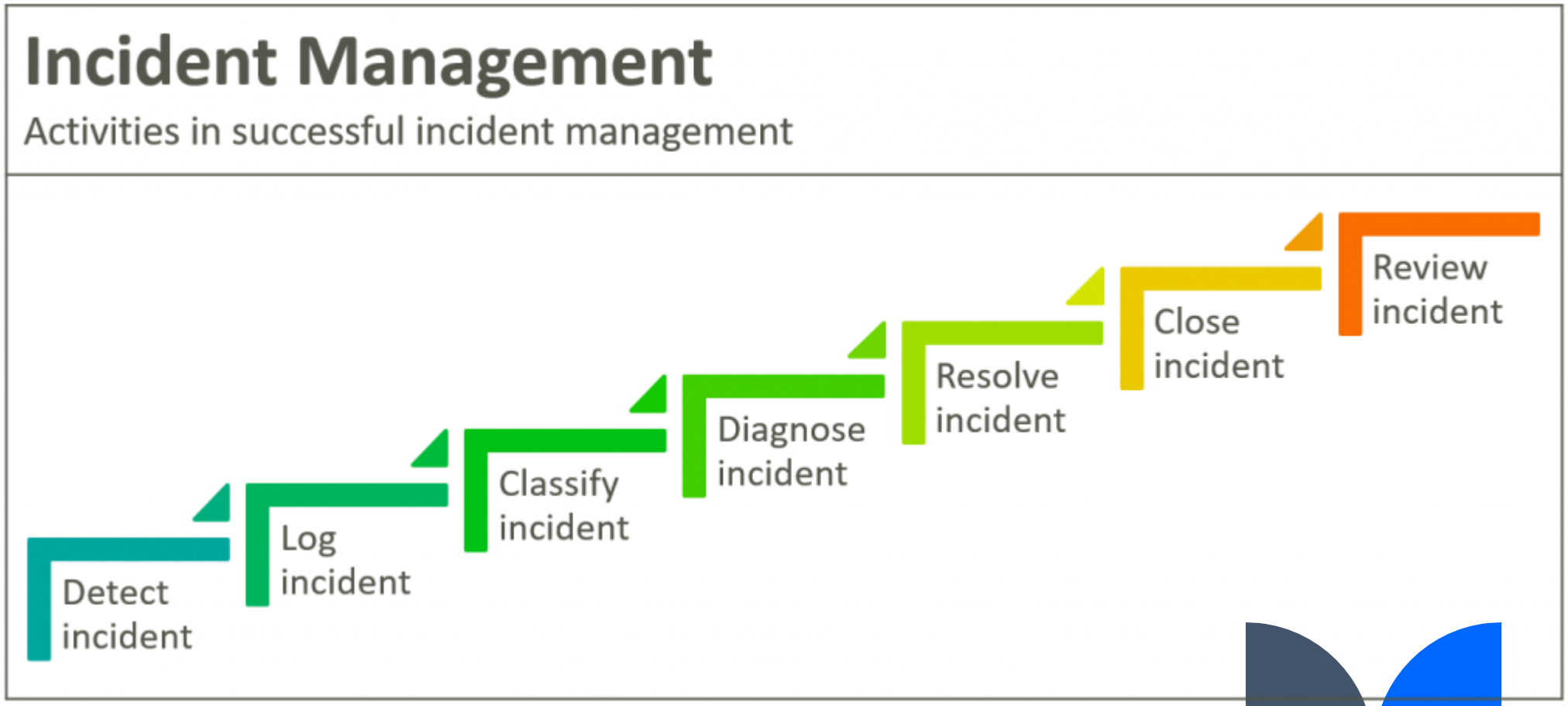
An unplanned interruption to a service or reduction in the quality of a service

Incidents may be diagnosed and resolved by people in many different groups:

- Some incidents will be resolved by the users themselves, using self-help.
- Some incidents will be resolved by the service desk.
- More complex incidents will usually be escalated to a support team for resolution.
- Incidents can be escalated to suppliers or partners, who offer support for their products and services.
- The most complex incidents, and all major incidents, often require a temporary team to work together to identify the resolution

Incident management

Incident Management Process!



Incident management

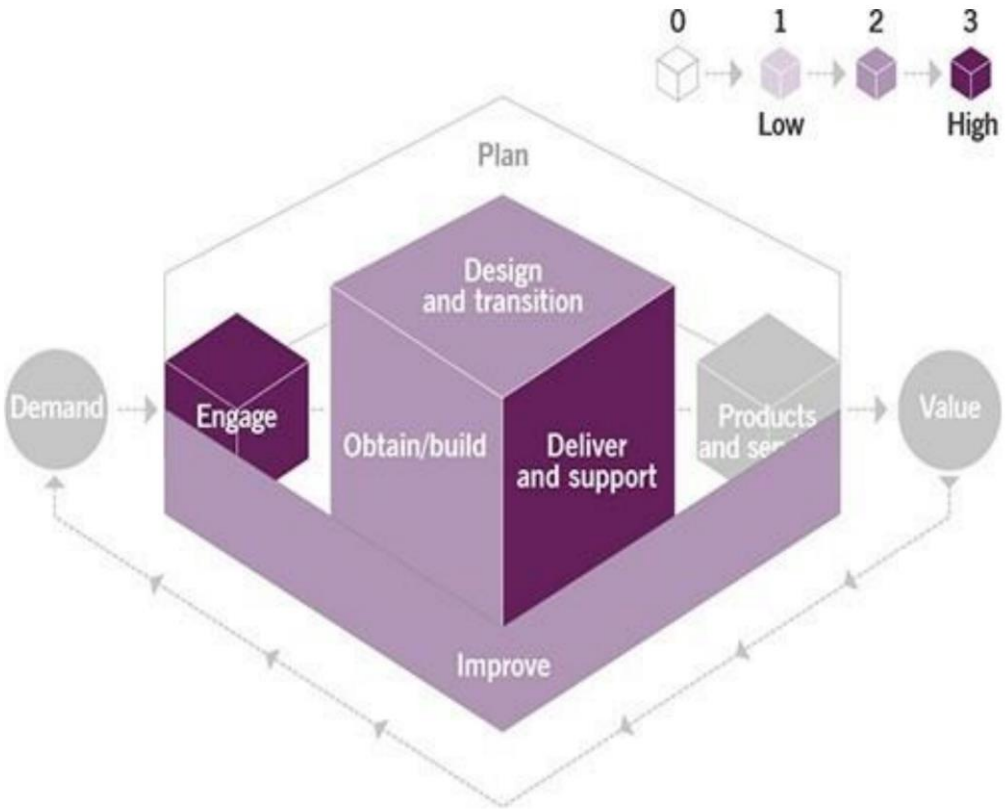
Impact on business

Incident management can have an enormous impact on customer and user satisfaction, and on how customers and users perceive the service provider.

- Every incident should be logged and managed to ensure that it is resolved in a time that meets the expectations of the customer and user.
- Target resolution times are agreed, documented, and communicated to ensure that expectations are realistic.
- Incidents are prioritized based on an agreed classification to ensure that incidents with the highest business impact are resolved first.
- Management and resource allocation should be commensurate with the type of incident
- 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

Incident management

contribution of incident management to the SVC



- **Improve:** Incident records are a key input to improvement activities and are prioritized both in terms of incident frequency and severity.
- **Engage:** Incidents are visible to users, and significant incidents are also visible to customers.
- **Design and transition:** Incidents may occur in test environments, as well as during service release and deployment
- **Obtain/build:** Incidents may occur in development environments. Incident management practice ensures these incidents are resolved in a timely and controlled manner.
- **Deliver and support:** Incident management makes a significant contribution to support. This value chain activity includes resolving incidents and problems.

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Monitoring and event management

Key message!

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

Definition: Event Any change of state that has significance for the management of a service or other configuration item (CI). Events are typically recognized through notifications created by an IT service, CI, or monitoring tool.

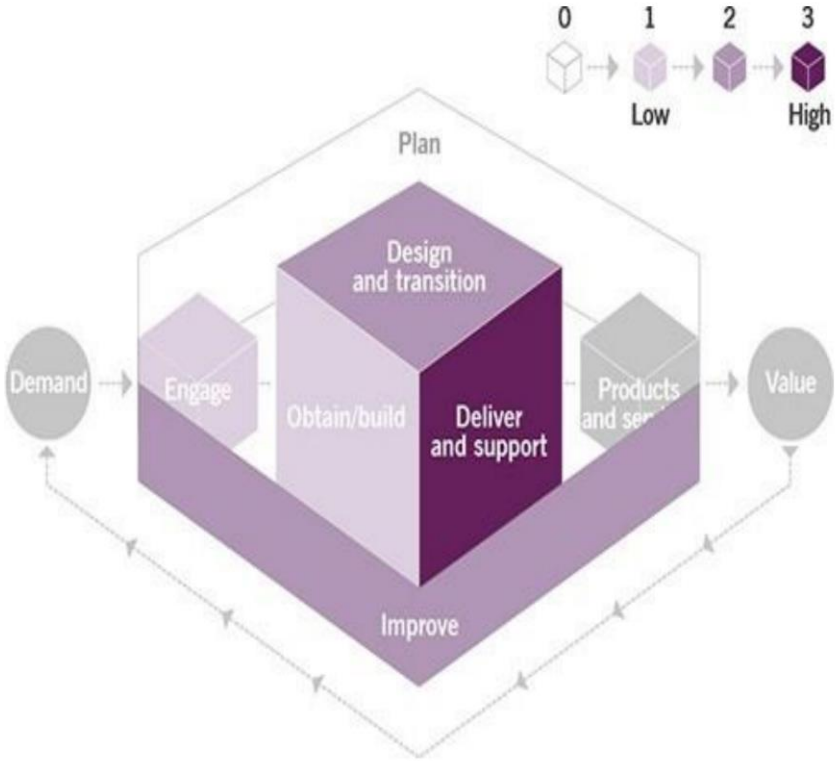
Monitoring and event management

monitoring and event management practice must address these key activities and more:

- identifying what services, systems, CIs, or other service components should be monitored, and establishing the monitoring strategy
- implementing and maintaining monitoring, leveraging both the native monitoring features of the elements being observed as well as the use of designed-for-purpose monitoring tools
- establishing and maintaining thresholds and other criteria for determining which changes of state will be treated as events, and choosing criteria to define each type of event (informational, warning, or exception)
- establishing and maintaining policies for how each type of detected event should be handled to ensure proper management
- implementing processes and automationsrequired to operationalize the defined thresholds, criteria, and policies.

management

contribution of IT Monitoring and event management to the SVC



- **Improve:** monitoring and event management is essential to the close observation of the environment to evaluate and proactively improve its health and stability.
- **Engage:** Monitoring and event management may be the source of internal engagement for action.
- **Design and transition:** Monitoring data informs design and transition decisions.
- **Obtain/build:** Monitoring and event management supports development environments, ensuring their transparency and manageability
- Deliver and support: The practice guides how the organization manages internal support of identified events, initiating other practices as appropriate.

Problem management

Key message!

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

Problem: A cause, or potential cause, of one or more incidents.

Known error: A problem that has been analyzed but has not been resolved.

The phases of problem management:

Problem management

Problems versus Incidents:

- Incidents have an impact on users or business processes, and must be resolvedso that normal business activity can take place
- Problems are the causes of incidents. They require investigation and analysis to identify the causes, develop workarounds, and recommend longer-termresolution. This reduces the number and impact of future incidents.

Phases of PM:

- **Problem Identification:**
  - performing trend analysis of incident records
  - detection of duplicate and recurring issues by users
  - during major incident management, identifying a risk that an incident could recur
  - Analyzing information received from suppliers and partners
  - Analyzing information received from internal software developers, test teams,and project teams.

Problem management

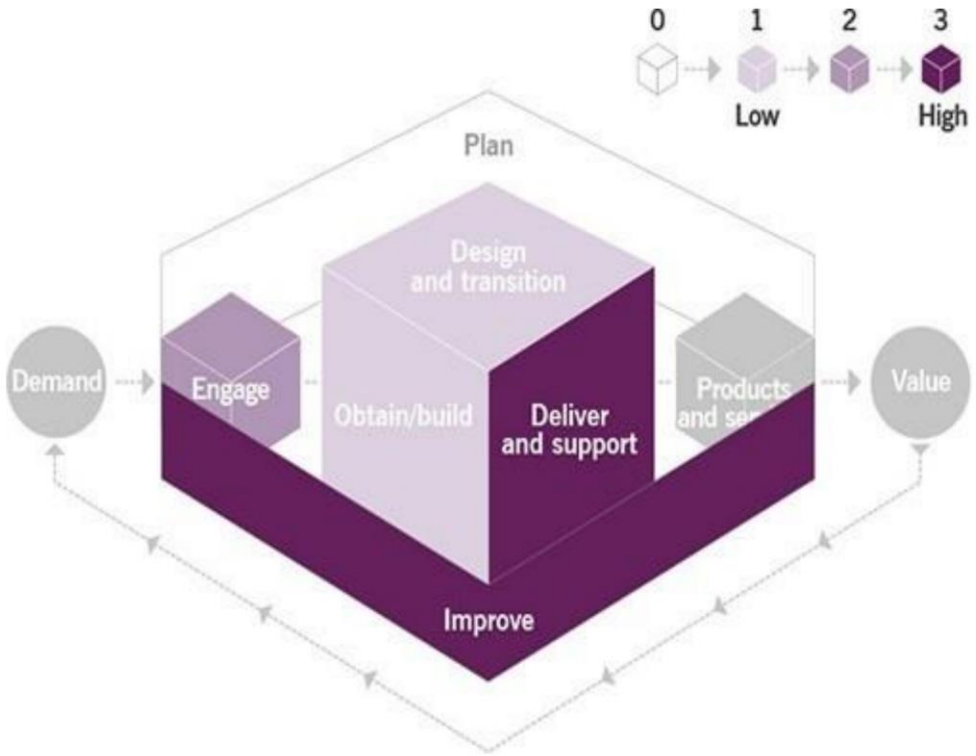
- **Problem Control:**
  - include problem analysis, and documenting workarounds and known errors.
  - Problems are prioritized for analysis and managed as risks based on their potential impact and probability
  - Problem control should consider all contributory causes, including causes that contributed to the duration and impact of incidents
  - When a problem cannot be resolved quickly, it is often useful to find and document a workaround for future incidents

Definition: 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.

- **Error Control:**
  - For other problems, a way to fix the error should be found. This is a part of error control.
  - Error control activities manage known errors, which are problems where initial analysis has been completed
  - Error control also includes identification of potential permanent solutions
  - Includes change request for implementation of a solution, but only if this can be justified in terms of cost, risks, and benefits.

Problem management

contribution of problem management to the SVC



- **Improve:** Effective problem management provides reduce the number of incidents and the impact of incidents that can’t be prevented.
- **Engage:** Problems that have a significant impact on services will be visible to customers and users.
- **Design and transition:** Problem management provides information that helps to improve testing and knowledge transfer.
- **Obtain/build:** Product defects may be identified by problem management; these are then managed as part of this value chain activity.
- **Deliver and support:** Problem management makes a significant contribution by preventing incident repetition and supporting timely incident resolution.
- .

Change Control/Enablement

Key message!

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

Definition: **Change**

The addition, modification, or removal of anything that could have a direct or indirect effect on services. Other considerations of change includes:

- The scope of change includes, IT infrastructure, applications, documentation, processes, supplier relationships or anything else that might directly or indirectly impact a product or service.
- Organizational change considers the people aspect of change ensure that improvements and organizational transformation initiative sare implemented successfully

Change Control/Enablement

- All changes should be assessed by people who are able to understand the risks and the expected benefits
- Changes must then be authorized before they are deployed. The person or group who authorizes a change is known as a change authority.
- The correct change authority must be assigned to each type of change 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 Control/Enablement

Types of change

There are three types of changes managed in different ways:

- **Standard Changes**:
  - These are low-risk, pre-authorized changes that are well understood and fully documented and can be implemented without needing additional authorization.
  - They are often initiated as service requests.
- **Normal changes:**
  - Must be scheduled, assessed, and authorized following a process.
  - Change models based on the type of change determine the roles for assessment and authorization.
  - Low risk normal changes often use automation to speed up the change authorization process.
  - Major normal changes might require change authority could be as high as the management board .
  - Normal changes are initiated via change requests. This may be created manually.
  - Organizations that have an automated pipeline for continuous integration andcontinuous deployment often automate most steps of the change control process.

Change Control/Enablement

Types of change

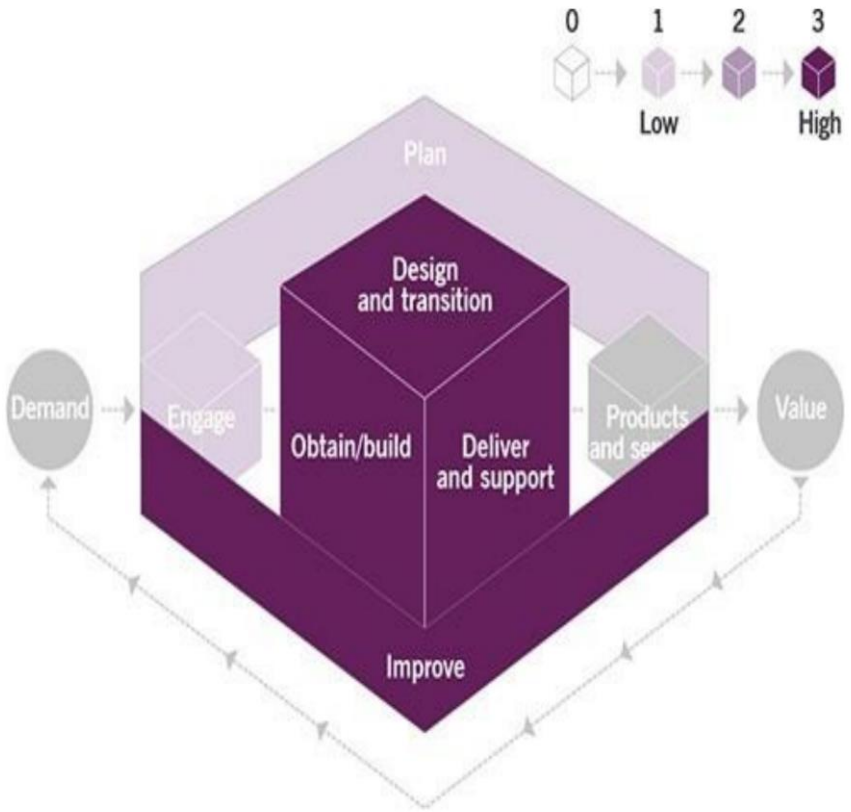
- **Emergency changes:**
  - These are changes that must be implemented as soon as possible
  - For example, to resolve an incident or implement a security patch.
  - Emergency changes are not typically included in a change schedule
  - The assessment and authorization process is expedited to ensure quick implementation
  - As far as possible, emergency changes should be subject to the same testing, assessment, and authorization as normal changes
  - There may also be a separate change authority for emergency changes.

Change schedule

- The change schedule is used to help plan changes
- Assist in communication, avoid conflicts, and assign resources
- Used after changes have been to provide information needed for incident management, problem management, and improvement planning.

Change Control/Enablement

contribution of change control management to the SVC



- **Plan:** change control practice is used to control changes to product, service portfolios and policies.
- **Improve: I**mprovements are driven through changes. These should be assessed and authorized in the same way as all other changes.
- **Engage:** Customers and users may need to be consulted or informed about changes, depending on the nature of the change.
- **Design and transition:** Change control activity is a major contributor to transition.
- **Obtain/Build:** Changes to components are subject to change control, whether they are built in house or obtained from suppliers.
- **Deliver and support:**Changes may have an impact on delivery and support, and information about changes must be communicated to personnel who carry out

Information Security Management

Key message!

The purpose of the Information Security practice is to protect the information needed by the organization to conduct its business. This includes managing the risks to the Confidentiality, Integrity and Availability or information.

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

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

Information Security Management

Fundamental Security Principles

"Information Security is the process of protecting our intellectual property."

Information Security is to ensure **C I A**

Confidentiality – Integrity - Availability

Confidentiality is a set of rules that **limits access to information**

Integrity is the assurance that the information is trustworthy

Availability is a guarantee of **reliable access to the information by authorized people**.

Information Security Management

Fundamental Security Principles

"Information Security is the process of protecting our intellectual property."

Information Security is achieved through **AAA**

Authentication – Authorization - Accounting

Authentication is a mandates that only approved entities **can access protected information assets**

Accounting is ensures that transactions executed on protected systems are monitored and recorded.

Authorization ensures that the **right privileges are accorded authorized people**.

Information Security Management

Information Classification

It‘s legally required e.g. Data Privacy laws compels us to protect PII data from disclosure

It is the method to determine the value of the information / intellectual property
E.g. What are the company‘s Crown Jewels?

Proper classification reduces massively the risk of information disclosure

It‘s the method to identify and set the right level of data protection

Why do we need to classify our data? Why all this effort?

Only proper classification enables us doing the right thing.
E.g. sharing Restricted/Higly Restricted data

Information Security Management

Information Classification

Basic Definitions:

- **Public:** Information that is shared externally knowingly and willingly.
- **Business Use:** Information that is shared internally and externally on a limited basis (80% of data will fall into this category)
- **Highly Restricted:** Information that is shared on a restricted basis
- **Secret:** Information that is most restrictive (<1% of the data by volume

Information Security Management

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Information Security Management

Key Components of Information Security Management System

The following are key components:

Policies and procedures: Establishing clear policies and procedures is essential to protecting sensitive data. The policies should be reviewed regularly and updated to reflect business environment or technology changes.

1.Risk assessment: A risk assessment should be conducted periodically to identify potential threats and vulnerabilities. The assessment should consider the type of data, the level of sensitivity, and the potential impact of a security breach.

2.Mitigation strategies: Once risks have been identified, mitigation strategies should be implemented to reduce the likelihood or impact of an incident. These may include technical controls, such as firewalls and intrusion detection systems, or organizational measures, such as employee training.

3.Monitoring and testing: Information security should be monitored on an ongoing basis to ensure that policies and procedures are followed, and that controls are effective. Regular testing should be conducted to identify weaknesses and vulnerabilities.

Information Security Management

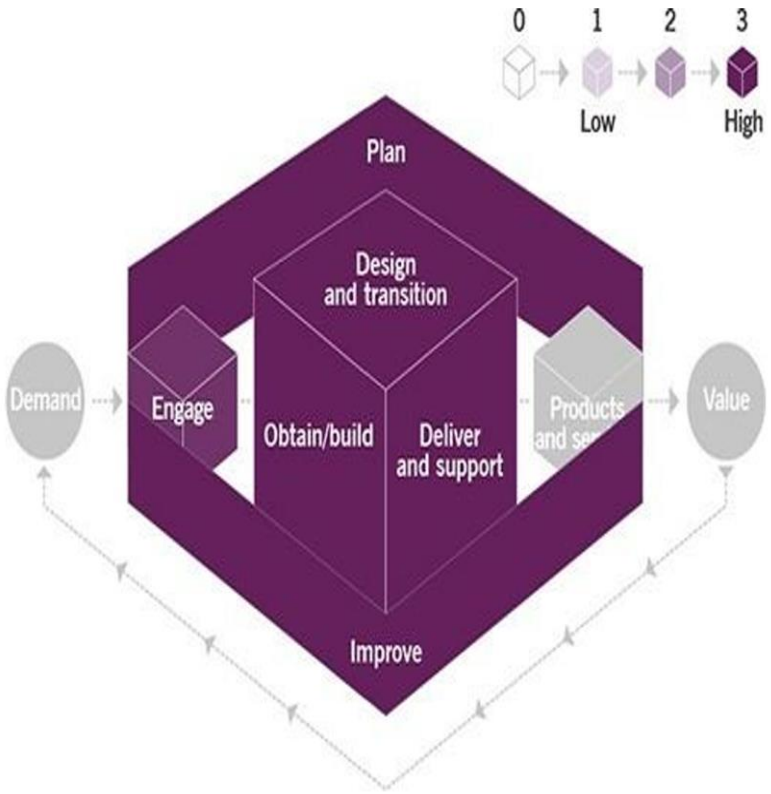
Key Principles

- **Principle of Least Privilege (POLP):** is an information security concept which maintains that a user or entity should only have access to the specific data, resources and applications needed to complete a required task.
- **Principle of Need to Know:** a user should only have access to the information that his or her job function requires.
- **Principle of Separation of Duties:** Separation of duties, also known as segregation of duties, is the concept of having more than one person required to complete a task. It is an administrative control used by organisations to prevent fraud, sabotage, theft, misuse of information, and other security compromises
- **Principle of Separation of Privileges:** demands that a given single control component is not sufficient to complete a task.

- **Principle of Non-Repudiation:** nonrepudiation ensures that no one can deny the origin or authenticity of a message

Information Security Management

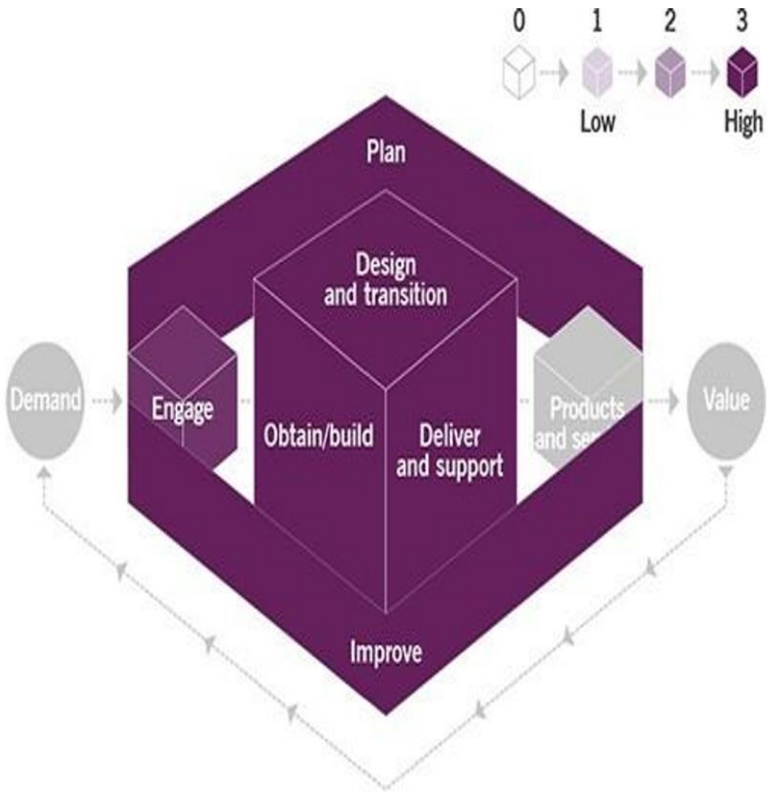
Information Security Management contribution to the SVS



- **Plan:** Information security must be considered in all planning activity and must be built into every practice and service.
- **Improve:** Information security must be considered in all improvement value chain activity to ensure that vulnerabilities are not introduced when making improvements.
- **Engage:** Information security requirements for new and changed services must be understood and captured. All stakeholders must contribute to information security, including customers, users, suppliers, etc.
- **Design & Transition:** The design and transition of all services must consider information security aspects as well as all other utility and warranty requirements.

Information Security Management

Information Security Management contribution to the SVS



- **Obtain/build:** Iinformation security must be built into all components, based on the risk analysis, policies, procedures, and controls defined by information security management.
- **Delivery & Support**: Detection and correction of information security incidents must be an integral part of this value chain activity.

Release management

Key message!

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

Definition: **Release**

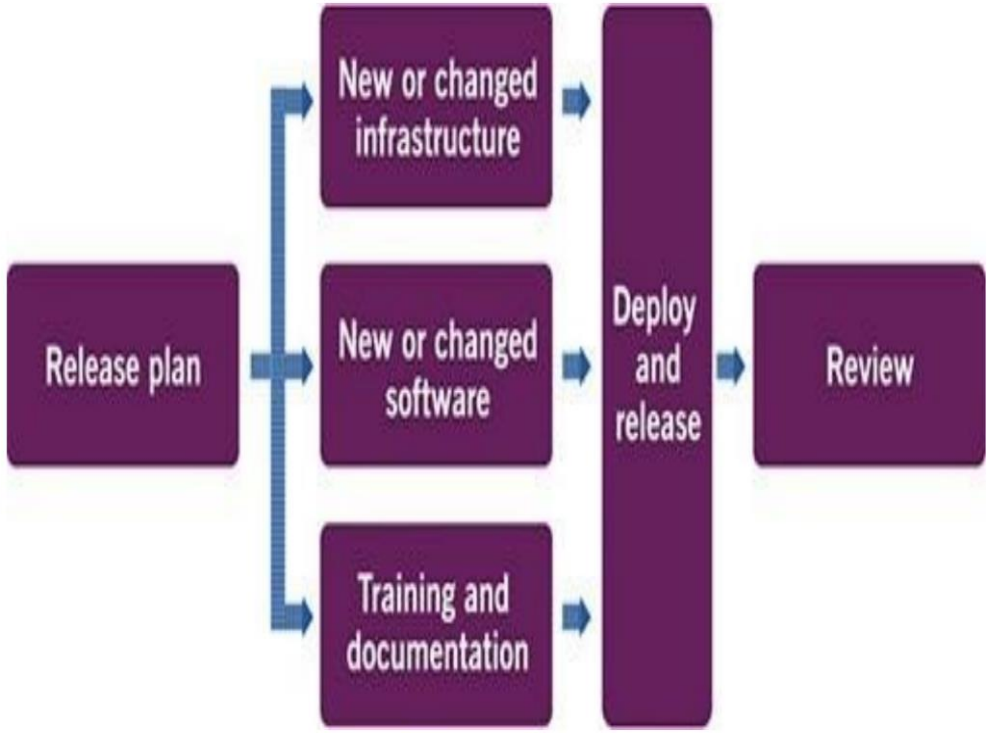
A version of a service or other configuration item, or a collection of configuration items, that is made available for use.

Release Staging:

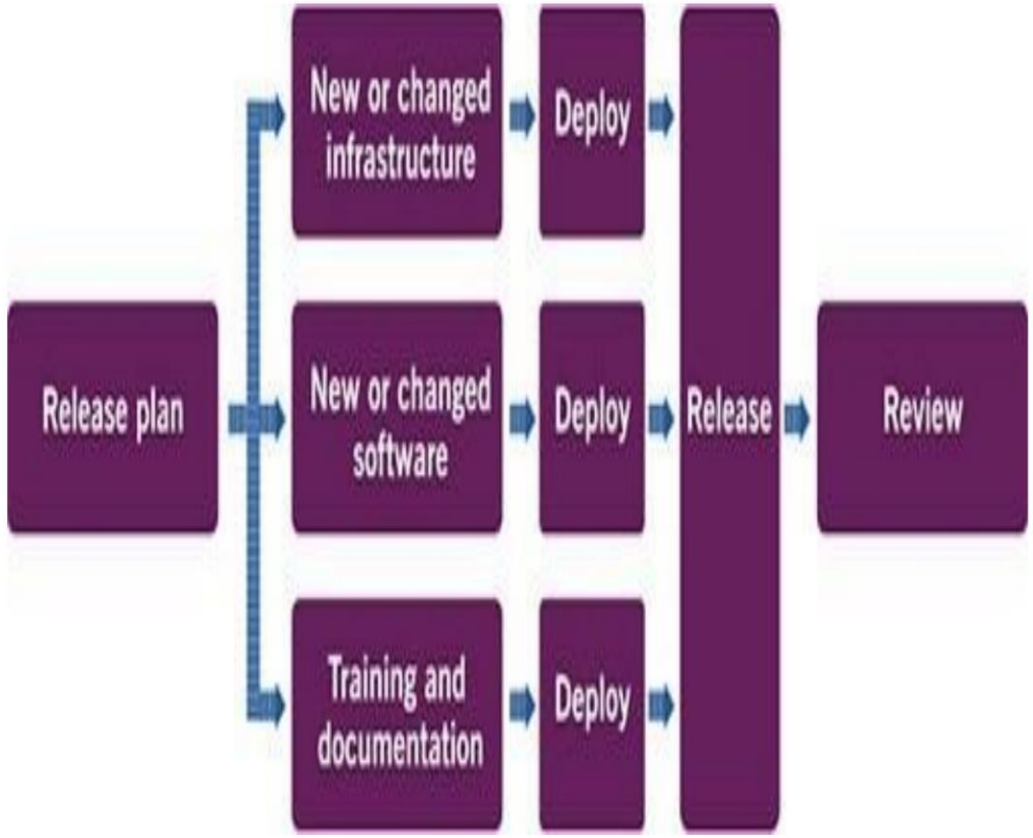
- Blue/green releases use two mirrored production environments. Users can switch to the updated environment using network tools
- Feature flags enable specific features to be released to individual users or groups in a controlled way.
- In a DevOps environment, release management is often integrated with the continuous integration and continuous delivery toolchain

Release management

RM in a waterfall/traditional environment

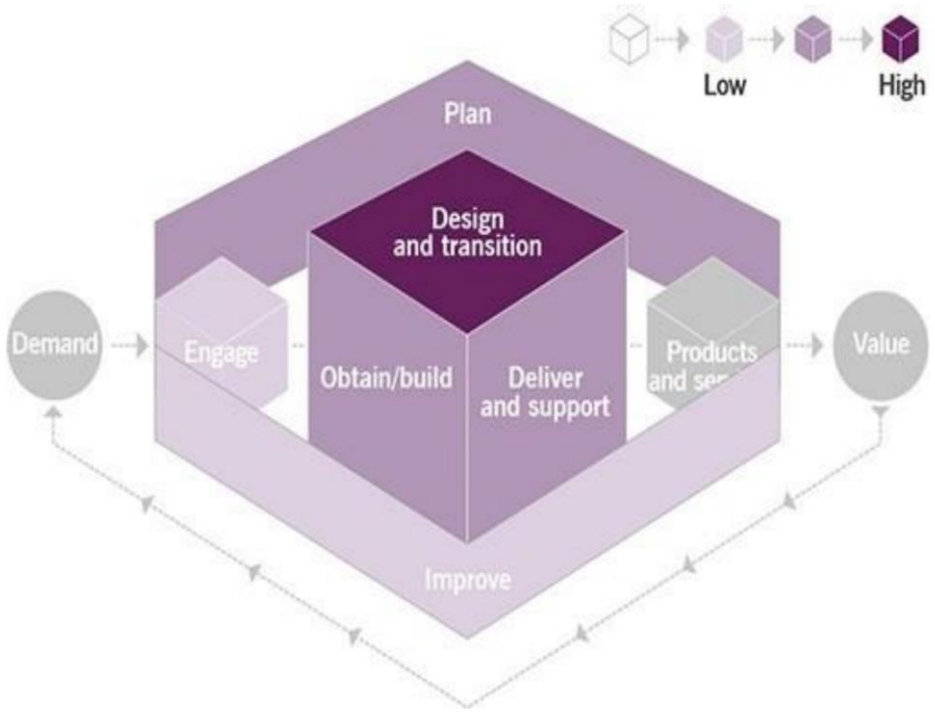


RM in an AgileDevOps environment



Release management

contribution of release management to the SVC



- **Plan:** The size, scope, and content of each release should be planned and managed.
- **Improve:** New or changed releases may be required to deliver improvements.
- **Engage:** The content and cadence of releases must be designed to match the needs and expectations of customers and users.
- **Design and transition:** Release management ensures that new or changed services are made available to customers in a controlled way.
- **Obtain/build:** Changes to components are normally included in a release, delivered in a controlled way.
- **Deliver and support:** Releases may impact on delivery and support.

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Capacity and performance management

Key message!

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

Definition: **Performance**

A measure of what is achieved or delivered by a system, person, team, practice, or service.

Service performance: the number of service actions performed in a timeframe and the time required to fulfil a service action at a given level of demand

Service capacity: the maximum throughput that a CI or service can deliver. Service performance depends on service capacity.

Capacity and performance management

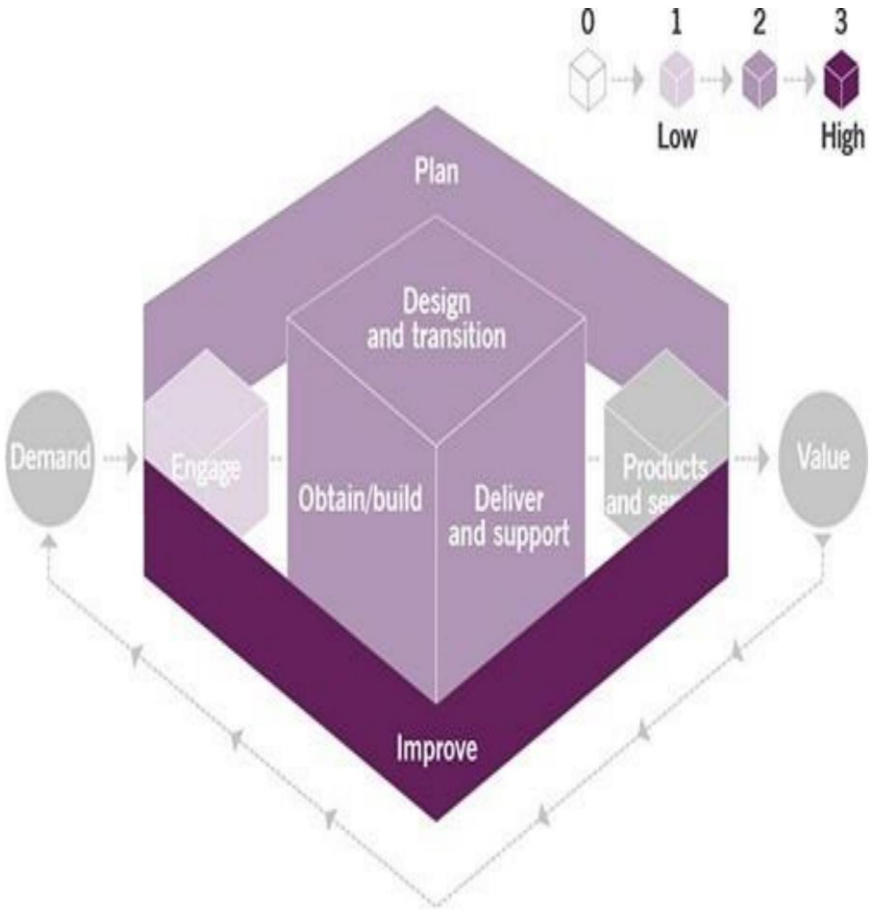
The capacity and performance management practice includes the following activities:

- service performance and capacity analysis:
  - research and monitoring of the current service performance
  - capacity and performance modelling
- service performance and capacity planning:
  - capacity requirements analysis
  - demand forecasting and resource planning
  - performance improvement planning

Service performance contributes significantly to customers and users' satisfaction
Capacity and performance analysis and planning contributes to service planning and building, as well as to ongoing service delivery, evaluation, and improvement

Capacity and performance management

contribution of capacity and performance management to the SVC



- **Plan**: supports tactical and operational planning with information about actual demand and performance, and with modelling and forecasting tools and methods
- **Improve:** Improvements are identified and driven by performance information
- **Engage:** Customers' and users' expectations are managed and supported by information about performance and capacity constraints and capabilities.
- **Design and transition:** Capacity and performance management is essential for product and service design: it helps to ensure that new and changed services are designed for optimum performance, capacity, and scalability.

Service configuration management

Key message!

The purpose of the service configuration management practice is to ensure that accurate and reliable information about the configuration of services, and the CIs that support them, is available when and where it is needed. This includes information on how CIs are configured and the relationships between them.

Definition: **Configuration item**

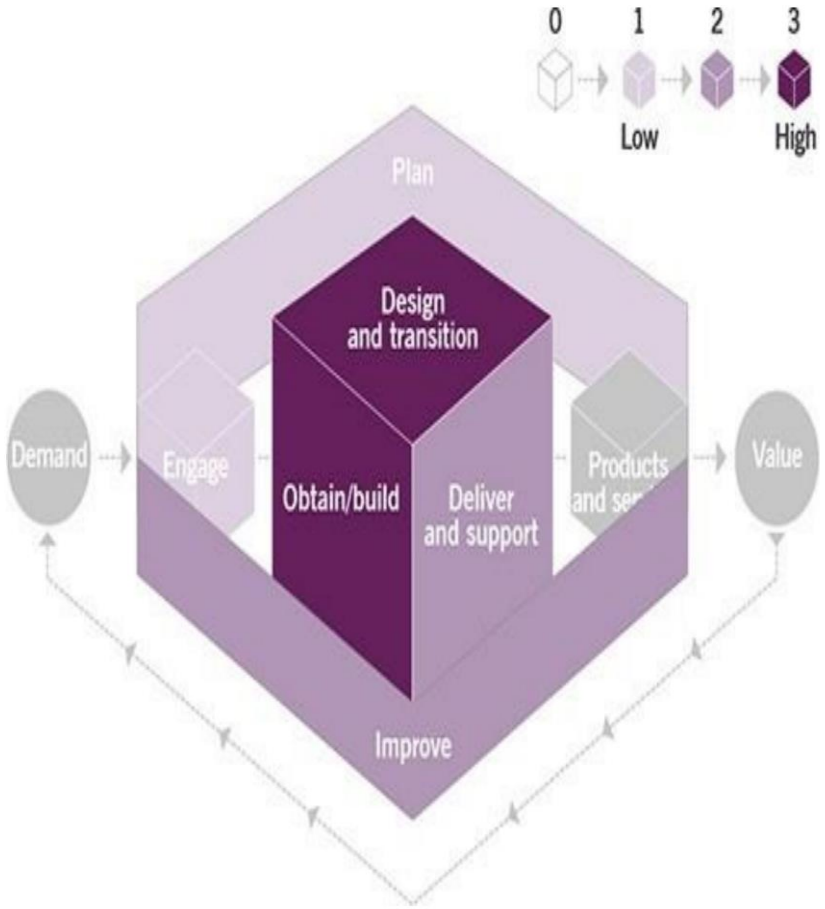
Any component that needs to be managed in order to deliver an IT service.

Definition: Configuration management system

A set of tools, data, and information that is used to support service configuration management.

Service configuration management

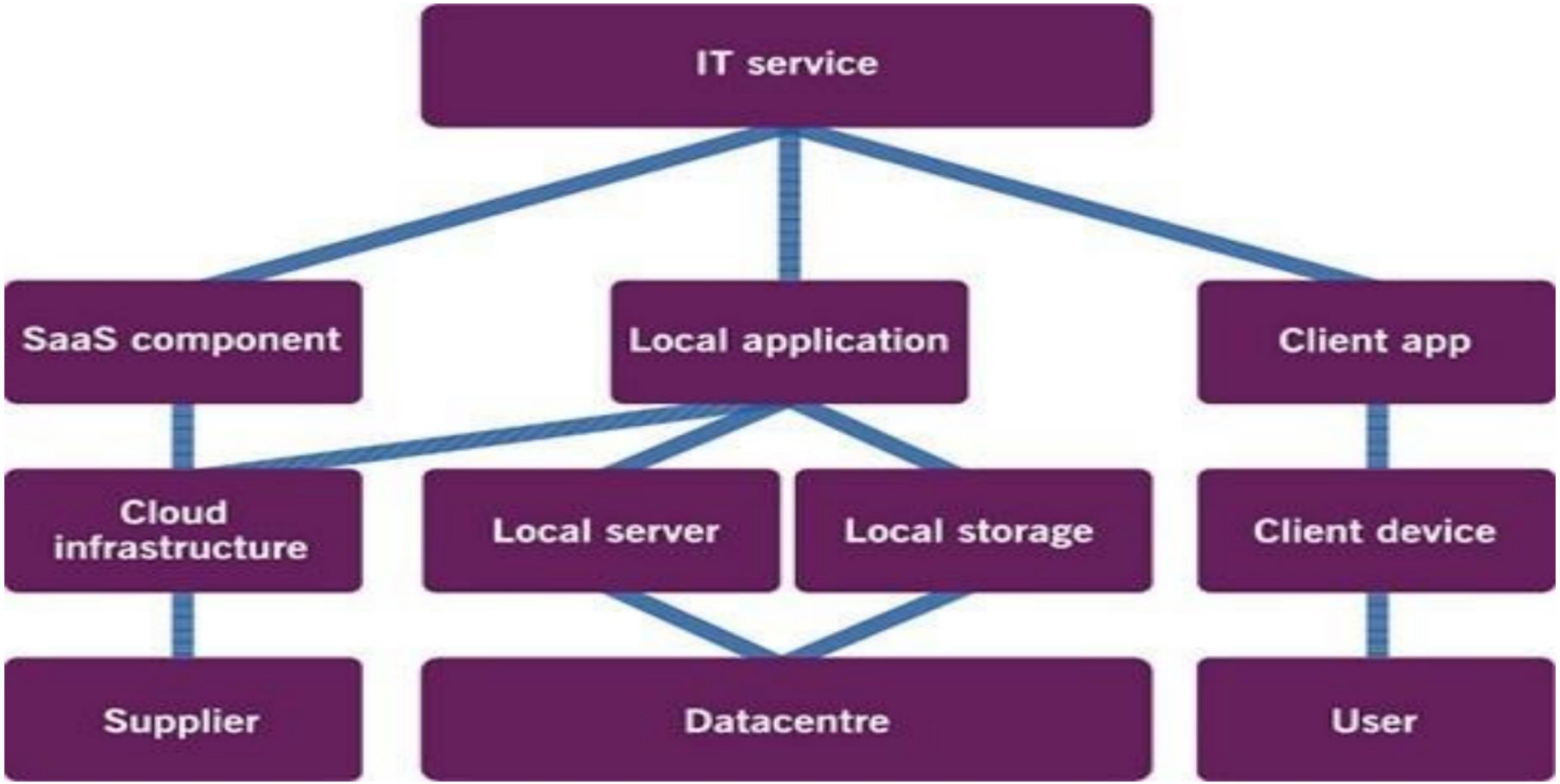
contribution of Service configuration management to the SVC



- **Plan:** CM is used for planning new or changed services.
- **Improve:** CM like every other aspect of service management, should be subject to measurement and continual improvement.
- **Engage:** Some stakeholders(partners and suppliers, consumers, regulators, etc.) may require and use configuration information, or provide their configuration information to the organization.
- **Design and transition:** CM documents how assets work together to create a service. This information is used to support many value chain activities and is updated as part of the transition activity.

Service configuration management

Simplified service model for a typical IT service



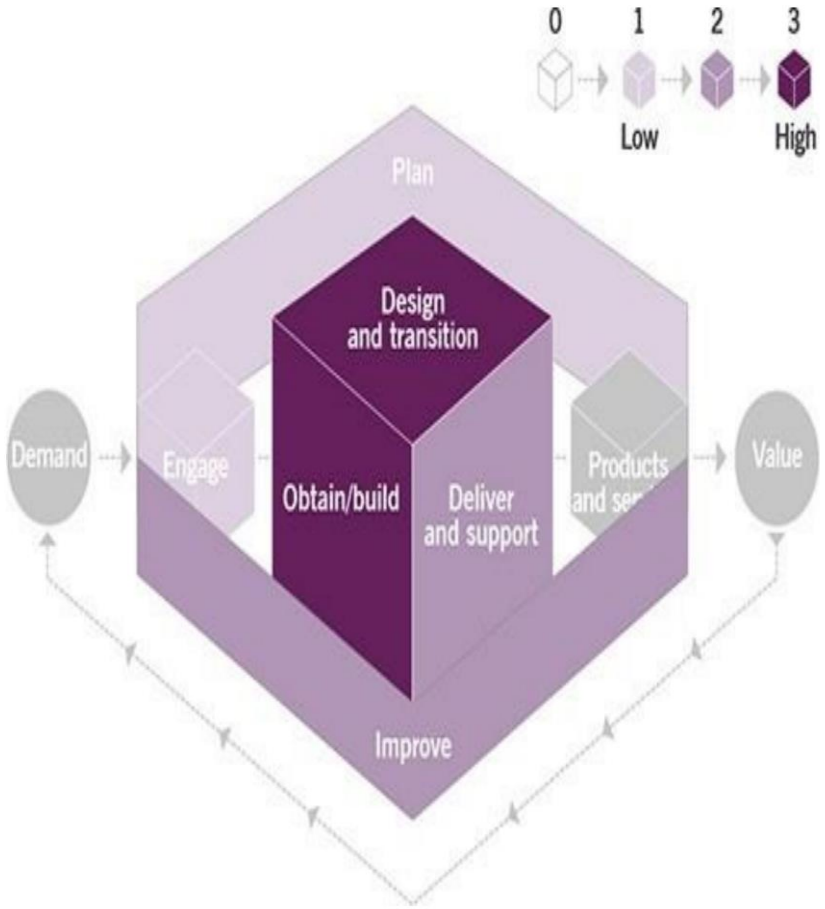
Service configuration management

Configuration management typically needs to processes:

- Many organizations use data collection tools to gather detailed configuration information from infrastructure and applications
- identify new CIs, and add them to the CMS
- update configuration data when changes are deployed
- verify that configuration records are correct
- audit applications and infrastructure to identify any that are not documented
- Sometimes configuration information is used to actually create the CI, rather than just to document it. This approach is used for ‘infrastructure as a code’ where information on the infrastructure is managed in a data repository and used to automatically configure the environment.

Service configuration management

contribution of Service configuration management to the SVC



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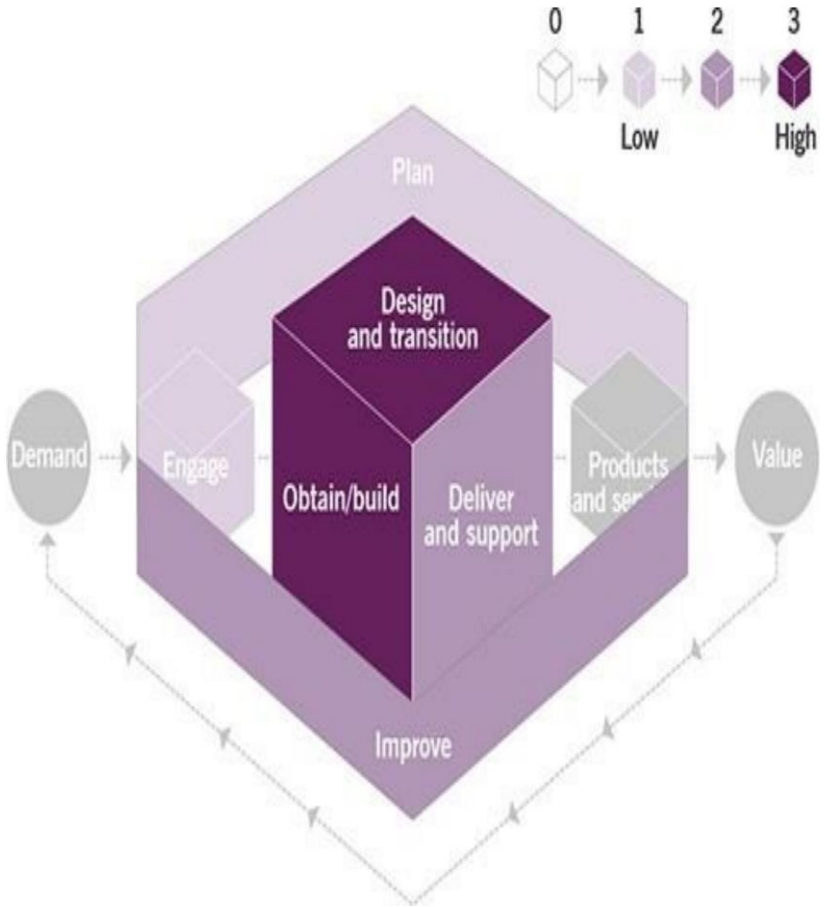


- **Obtain/build:** Configuration records may be created during this value chain activity, describing new or changed services and components. Sometimes configuration records are used to create the code or artefact that is being built.
- **Deliver and support:** Information on CIs is essential to support service restoration. Configuration information is used to support activities of the incident management and problem management practices.

Service level management

Key message!

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

Definition: **Service level**

One or more metrics that define expected or achieved service quality.

Definition: Service level agreement

A documented agreement between a service provider and a customer that identifies both services required and the expected level of service.

Service level management

- Service level management provides the end-to-end visibility of the organization’s services. To achieve this, service level management:
- Establishes a shared view of the services and target service levels with customers
- Ensures the organization meets the defined service levels through the collection, analysis, storage, and reporting of the relevant metrics for the identified services
- Performs service reviews to ensure that the current set of services continues to meet the needs of the organization and its customers
- Captures and reports on service issues, including performance against defined service levels.

Service level management

Definition: Service level agreement

A documented agreement between a service provider and a customer that identifies both services required and the expected level of service.

Service level agreements (SLAs) is a tool to measure the performance of services from the customer's point of view, and it is important that they are agreed in the wider business context. Some of the key requirements for successful SLAs include:

- They must be related to a defined 'service' in the service catalogue
- They should relate to defined outcomes and not simply operational metrics. This can be achieved with balanced bundles of metrics, such as customer satisfaction and key business outcomes
- They should reflect an 'agreement', i.e engagement and discussion between the service provider and the service consumer.
- It is important to involve all stakeholders, including partners, sponsors, users, and customers.
- They must be simply written and easy to understand and use for all parties.

Service level management

The Watermelon effect

- Traditional SLAs have been based on individual activities such as incident resolution times, system availability (‘99.9’), and volume metrics(e.g., number of incidents or requests handled). Without a business context these metrics are meaningless
- The SLA may have acceptable unavailability of 0.4%, but if downtime occurs when an important process is happening (such as a commercial transaction, an operating theatre in use, or point-of-sale tills in use), then customer/user satisfaction will be low, regardless of whether the SLA has been met.
- The service provider believes the reports are all green. when in fact its customers are dissatisfied with the service received and frustrated that the provider doesn’t notice this. This is known as the watermelon SLA effect, because like a watermelon, the SLA may appear green on the outside, but is actually red inside.
- Service level management identifies metrics and measures that are a truthful reflection of the customer’s actual experience and level of satisfaction with the whole service.

Service level management

Engagement and listening

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

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

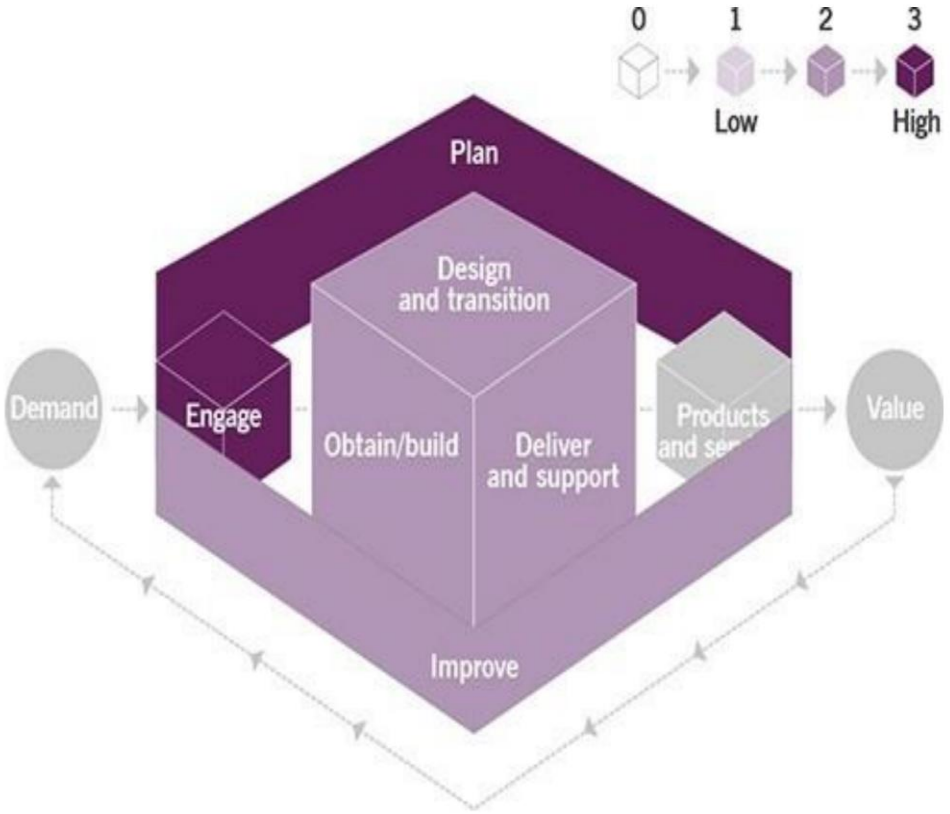
Service level management

Engagement and listening

- Customer feedback
  - **Surveys**: These can be from immediate feedback such as follow-up questions to incidents, or overall service experience. Both are event-based.
  - **Key business-related measures**: These are measures agreed between the service provider and its customer, based on what the customer values as important. This could be a bundle of SLA metrics or a very specific business activity
  - **Operational metrics:** These are the low-level indicators of various operational activities and may include system availability, incident response and fix times, change and request processing times, and system response times.
  - **Business metrics:** These can be any business activity that is deemed useful or valuable by the customer and used as a means of gauging the success of the service. These can vary from some simple transactional binary measures such as ATM or POS terminal availability during business hours (09:00–17:00 daily) or successful completion of business activities such as passenger check-in.

Service level management

contribution of service level management to the SVC



- **Plan:** Service level management supports planning of the product and service portfolio and service offerings with information about the actual service performance and trends.
- **Improve:** feedback from users, as well as requirements from customers, drives service improvement**.**
- **Engage:** ongoing engagement with customers and users through feedback processing and continual service review.
- **Design and transition:** interaction with customers and as well as user feedback provides inputs into service design
- **Obtain/Build:** provides objectives for components and service performance, as well as for measurement and reporting capabilities of the products and services
- **Deliver and support**: communicates service performance objectives to the operations and support teams and collects their feedback as an input for service improvement

Business analysis

Key message!

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

Analysis and solutions should be approached in a holistic way that includes consideration of processes, organizational change, technology, information, policies, and strategic planning. The work of business analysis is performed primarily by business analysts (BAs), although others may contribute.

Business analysis

In IT, business analysis practices are frequently applied in software development

Projects. To restrict the application of business analysis to software development alone is to run the risk of developing incomplete solutions. The key activities associated with business analysis are:

- analyzing business systems, business processes, services, or architectures in the changing internal and external context
- identifying and prioritizing parts of the SVS, and products and services that require improvement, as well as opportunities for innovation
- evaluating and proposing actions that can be taken to create the desired improvement
- documenting the business requirements for the supporting services to enable the desired improvements
- recommending solutions following analysis of the gathered requirements and validating these with stakeholders.

Business analysis

Definition: **Warranty requirements**

Typically, non-functional requirements captured as inputs from key stakeholders and other practices. Organizations should aim to manage a library of pre-defined warranty acceptance criteria for use in practices such as project management and software development and management.

Definition: Utility requirements

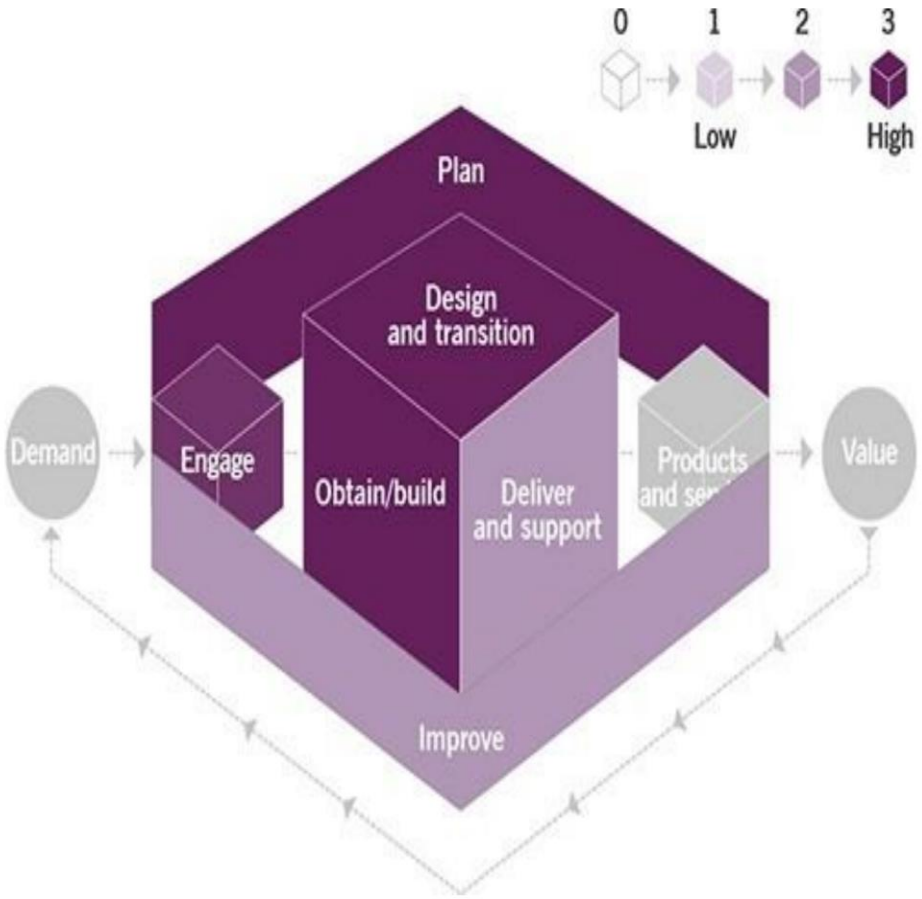
Functional requirements which have been defined by the customer and are unique to a specific product.

Business analysis is a recognized discipline with a specific set of skills such as:

- critical thinking and deep evaluation
- active listening
- communication and facilitation
- Ability to analyze and document business processes and use cases
- data analysis and modelling.

Business analysis

contribution of business analysis to the SVC



- **Plan:** Business analysis contributes to strategic decision-making on what will be done and how.
- **Improve:** All levels of evaluation and improvement benefit from business analysis
- **Engage:** Business analysis is key to the gathering of requirements during this value chain activity.
- **Design and transition:** Gathering, prioritization, and analysis of accurate requirements can help ensure that a high-quality solution is designed and progressed to operation.
- **Obtain/Build:** Business analysis skills are integral to the definition of an agreed solution.
- **Deliver and support:** Data from the ongoing delivery of a service can be part of business analysis activities when designing changes to the service, as well as opportunities for continual improvement

Thank you