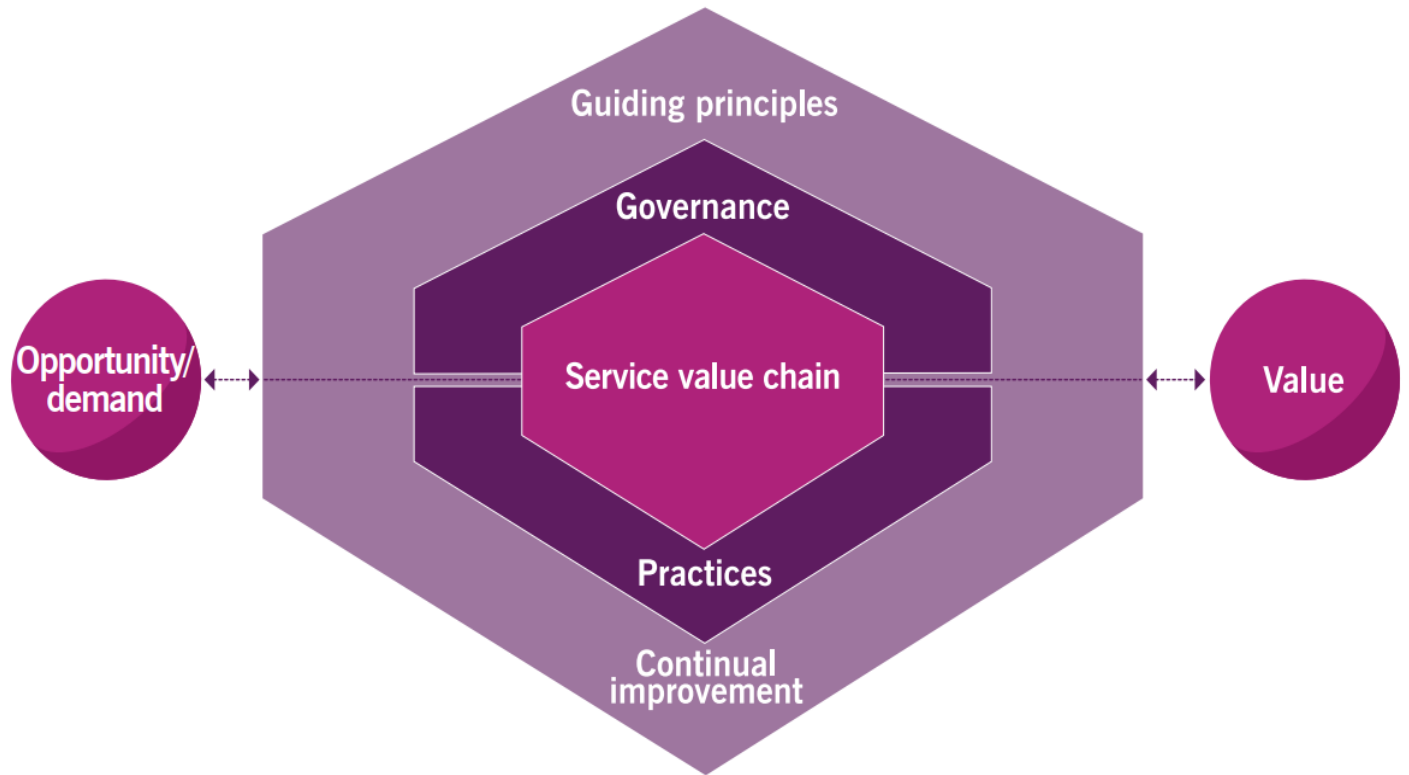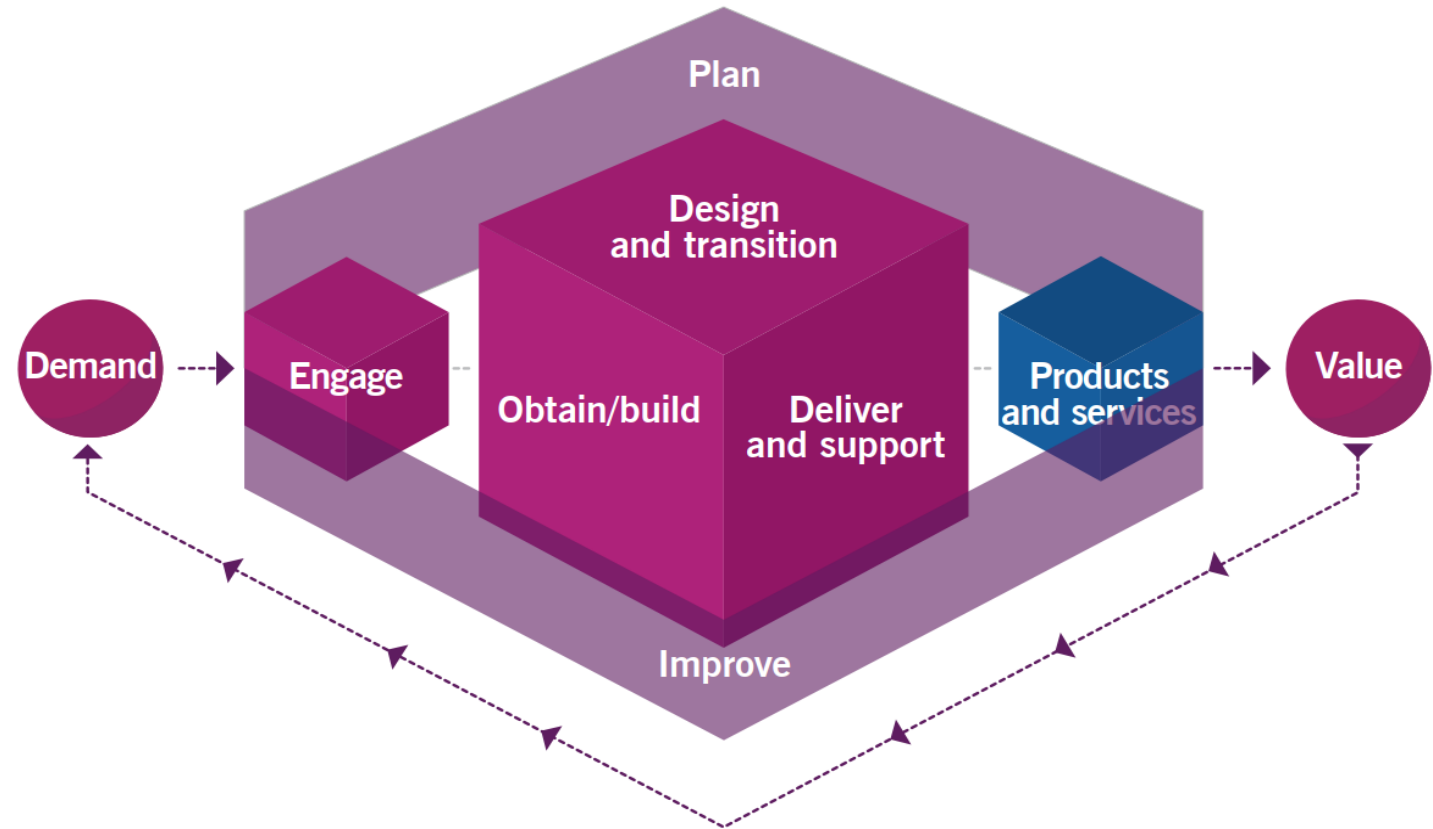# The ITIL Service Value System

- ITIL service value chain
- ITIL practices
- ITIL guiding principles
- Governance
- Continual improvement

The ITIL Service Value Chain

- plan

- improve

- engage

- design and transition

- obtain/build

- deliver and support

The ITIL Practices

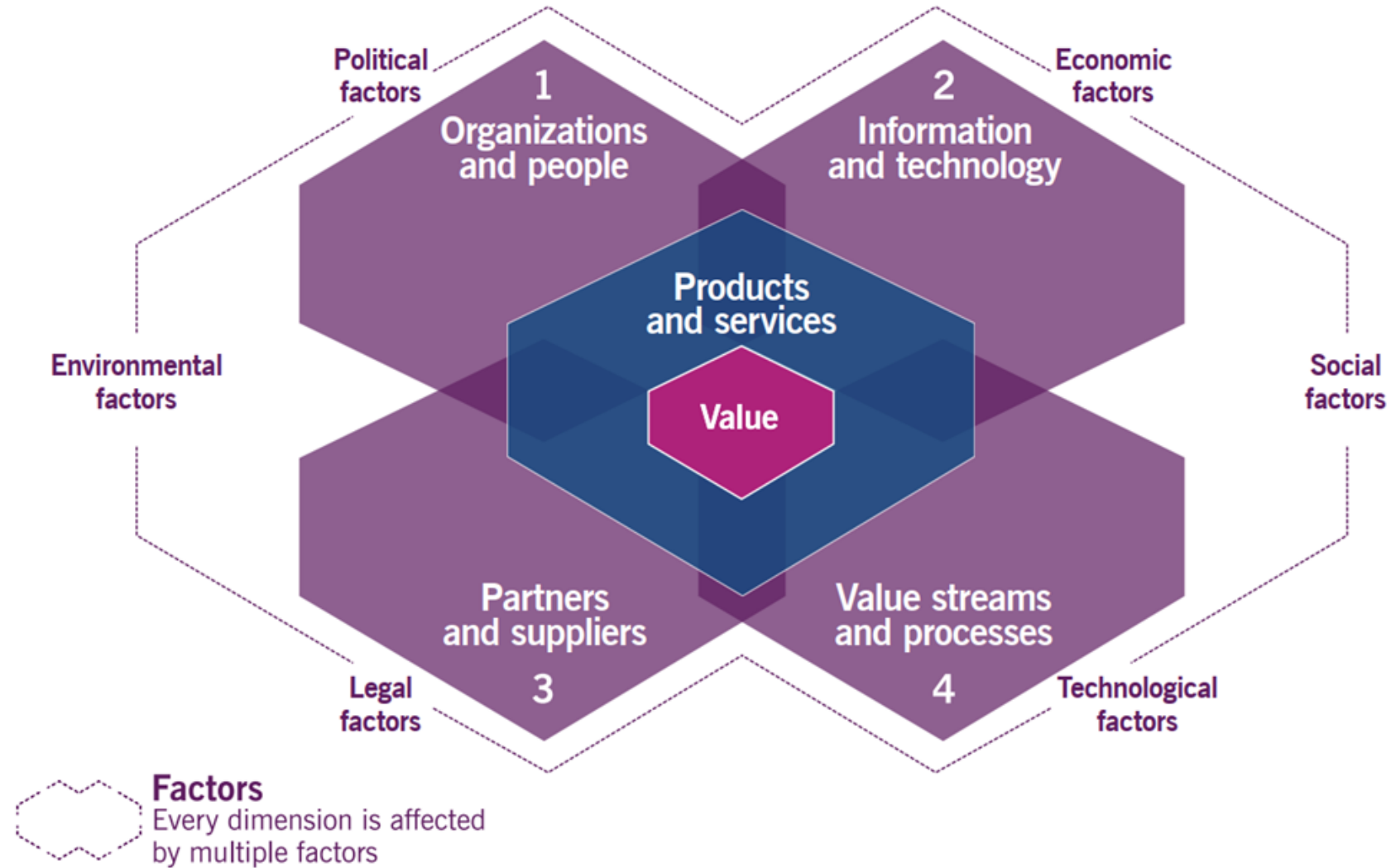| General management practices	Service management practices	Technical management practices
Architecture management	Availability management	Deployment management
Continual improvement	Business analysis	Infrastructure and platform management
Information security management	Capacity and performance management	Software development and management
Knowledge management	Change enablement	
Measurement and reporting	Incident management	
Organizational change management	IT asset management	
Portfolio management	Monitoring and event management	
Project management	Problem management	
Relationship management	Release management	
Risk management	Service catalogue management	
Service financial management	Service configuration management	
Strategy management	Service continuity management	
Supplier management	Service design	
Workforce and talent management	Service desk	
	Service level management	
	Service request management	
	Service validation and testing	

The ITIL Guiding Principles

- Focus on value

- Start where you

- Progress iteratively with feedback

- Collaborate and promote visibility

- Think and work holistically

- Keep it simple and practical

- Optimize and automate

Continual Improvement

	What is the vision?	**Business vision, mission, goals, and objectives**
	Where are we now?	**Perform baseline assessments**
How do we keep the momentum going?	**Where do we want to be?**	**Define measurable targets**
	How do we get there?	**Define the improvement plan**
	Take action	**Execute improvement actions**
	Did we get there?	**Evaluate metrics and KPIs**

The Four Dimensions Model

Value

The perceived benefits, usefulness, and importance of something

- In the past, much of the focus has been on cost effectiveness, basic functionality, or innovation.
- Currently, speed and flexibility are the differentiators between valuable and less valuable services.
- In the future to areas such as security, human centricity, increased automation

- Service management is about co-creating value.
- Technology is used to support value co-creation
- ITIL 4 takes a holistic approach to building and modifying technology-enabled services from demand to value.
- ITIL 4 describes a service value chain of six activities. These activities can be combined in various ways to create value streams.

Organization

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

Service relationships require many and varied interactions between individuals and groups both within and between organizations. Individuals and organizational structures:

- interact with information and technology

- participate in value streams and processes

- work with partners and suppliers.

Types of Organizational Structure

Functional	• Hierarchical, formal lines of authority, determine power, roles and responsibilities • Often based on functional areas like HR, IT finance, marketing etc.
Divisional	• Based on markets, products, geography etc. • Each division may have profit & loss accounting, sales, marketing, engineering, etc.
Matrix	• Grid of relationships • Pools of people who move across teams. • Often has dual reporting lines (e.g. functional and product) • Can provide more speed and agility
Flat	• Very little hierarchy • Removes decision making barriers, enabling fast decisions • Challenging to maintain as organization grows

Building effective teams

Roles and jobs

- A role is a set of responsibilities, activities, and authorizations granted to a person or team, in a specific context.

- A job is a position within an organization that is assigned to a specific person.

- A single person may, as part of their job, fulfil many different roles. A single role may be contributed to by several people.

Skills and Competencies

code	Competency profile (activities and skills)
L	Leader Decision-making, delegating, overseeing other activities, providing incentives and motivation, and evaluating outcomes
A	Administrator Assigning and prioritizing tasks, record-keeping, ongoing reporting, and initiating basic improvements
C	Coordinator/communicator Coordinating multiple parties, maintaining communication between stakeholders, and running awareness campaigns
M	Methods and techniques expert Designing and implementing work techniques, documenting procedures, consulting on processes, work analysis, and continual improvement
T	Technical expert Providing technical (IT) expertise and conducting expertise-based assignments

Skills and knowledge needed in service management

- Communication
- Business and commercial
- Relationship management
- Leadership
- Market and organizational knowledge
- Management and administration
- Developing innovation

Generalist or 'T-shaped' models

- **T-shaped** individual is an expert in one area who is also knowledgeable in other areas.
  - For example, a developer or tester who possesses knowledge of accounting.
- **pi-shaped** individual is an expert or near-expert in two areas and knowledgeable in other areas.
  - For example, someone who can both design and develop but also possesses good testing skills.
- **comb-shaped** individual is strong in more than two areas and knowledgeable in other areas.
  - For example, someone who can gather requirements, design, and develop and who has a good knowledge of the adjacent areas.

Workforce planning and management

- Capacity planning
  - Successful service delivery requires an understanding of the competencies needed and the amount of each resource required.

- Employee satisfaction management
  - Collecting feedback
  - Giving feedback

- Results-based measuring and reporting
  - Organizations use measuring and reporting to drive improvement activities and then track progress against the stated objectives.

Team Culture

A set of values that are shared by a group of people, including their ideas, beliefs, and practices, as well as their expectations with regard to how individuals within the group should behave.

- a focus on value, quality, and operational excellence

- client, customer, and consumer orientation

- investment in people and communication/collaboration tools

- strong team composition within a structured organization

- continual alignment with the vision, mission, and strategic objectives.

Cultural fit

The ability of an employee or a team to work comfortably in an environment that corresponds with their own beliefs, values, and needs.

To develop and nurture good team culture
- Incorporating vision into the team culture
- Regular meetings
- Create leaders
- Encouraging informal teams
- Cross-training employees
- Integrating socially
- Providing feedback
- Promoting a culture of learning

A continual improvement culture

The key elements of a continual improvement culture are:

- **Transparency** This encourages openness and trust.

- **Management by example** This should be displayed by all, especially leaders.

- **Building trust** The workplace should be a comfort zone where individuals feel supported to suggest, experiment with, and implement new ideas.

A collaborative culture

Cooperation Working with others to achieve your own goals.

- there is a risk that individuals or teams who are cooperating instead work in silos. As a result, the individual or team goals are achieved but the organizational goals are missed.

Collaboration Working with others to achieve common shared goals.

- useful for creative and entrepreneurial work in a complex environment.
- standardized work with a clear separation of duties, especially where people from multiple organizations are working together.

Align with the type of work

- An **algorithmic** task involves a person following a defined process that consistently follows a set of established instructions until the work is concluded.
- A **heuristic** task depends on human inventiveness and involves enabling a person to discover or learn something for themselves.

Servant leadership

- Managers focus on the needs of the organization, not just their team
- Managers 'serve' and support the people they lead by ensuring they have the right resources and support
- Often used with cross-functional/matrix organization structure
- Cross-functional organizations use combinations of matrix and flat structures

Customer orientation

- An approach to sales and customer relations in which staff focus on helping customers to meet their long-term needs and wants.

Service empathy

- The ability to recognize, understand, predict, and project the interests, needs, intentions, and experience of another party, in order to establish, maintain, and improve the service relationship.

Customer experience

- Create a value proposition (VP)
- Map the customer and user experience journeys
- Recruit user-friendly individuals
- Treat employees well
- Train individuals and teams
- Lead by example
- Listen to the customer
- Empower staff
- Avoid a silo mentality
- Design for humans

Positive communication

The ability to communicate effectively is a key business skill and is fundamental to success within service management.

- Effective human communication is enhanced by establishing positive relationships that avoid unnecessary issues and stress, and it can form the basis for the successful delivery of services.

- Service management professionals require the ability to manage relationships with colleagues and team members to achieve business goals.

- They also need to be able to build and maintain effective and positive relationships with customers.

Communication principles

- Communication is a two-way process
- We are all communicating all the time
- Timing and frequency matter
- There is no single method of communication that works for everyone
- The message is in the medium

Integration and data sharing

Integration topologies

- Point-to-point integration
- Publish–subscribe

Integration approaches

- Big bang
- Incremental delivery
- Direct integration with the (value) stream

Reporting and advanced analytics

- complex event processing
- data/text mining
- forecasting
- graph analysis
- machine learning
- multivariate statistics
- network and cluster analysis
- neural networks
- pattern matching
- semantic analysis
- sentiment analysis
- simulation
- visualization

Data analytics

Data

• Information that has been translated into a form that is efficient for movement or processing.
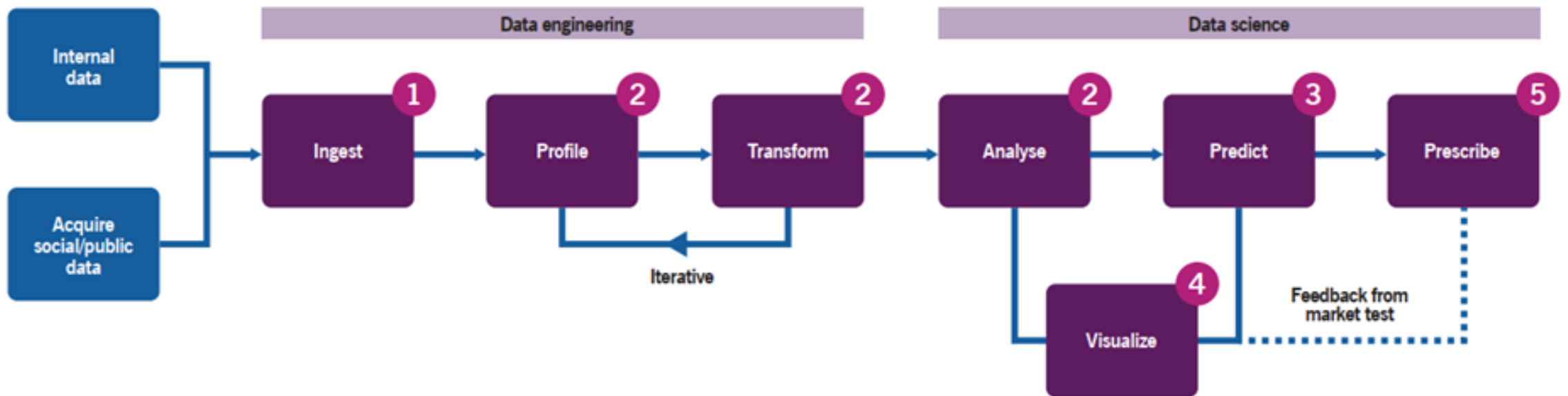
Big data

Big data is a term that describes large volumes of structured, semi-structured, and unstructured data. To extract meaningful information from big data requires processing power, analytics capabilities, and skill.

- The more complex the data, the bigger the challenge of finding value within it. Understanding and assessing the complexity of data is important when deciding whether a particular solution is appropriate and for mapping out the best approach.

- Query language Database systems use query languages for requesting data from the database.

Collaboration and workflow

Collaboration

- Making work visible
- Working in topic-based forums
- Mapping workflows
- Working in small teams and sprints
- Using simple feedback mechanisms
- Collaboration and 'social media' features

Collaboration and workflow

Tools and capabilities

- Communications wall
- Topic-based forums and folders
- Event surveys Support software
- Portals
- Self-help Knowledge bases
- Social media functions

Robotic Process Automation

A potential way for organizations to streamline business operations, lower staffing costs, and reduce errors. Through the use of software robots (bots), repetitive and mundane tasks can be automated, allowing resources to be deployed on higher-value activities elsewhere.

- Robots can be used to simulate activities that humans perform via screens or applications in order to capture, interpret, and process transactions. This can trigger responses, creating and manipulating data in a consistent and predictable way.

Three types of RPA technology:

- Process automation

- Enhanced and intelligent process automation

- Cognitive platforms

Artificial Intelligence

Cognitive technology is increasingly being used to provide more automation in each phase of the service lifecycle and to enhance the service experience for both the consumers and the people involved in serving them.

Applications and value

- Process and decision automation
- Natural language
- Conversational interfaces
- Predictive
- Discovery

The growth of AIOps

 * Algorithmic IT Operations / Artificial Intelligence for IT operations

- AIOps platforms referring to the practice of combining big data, analytics, and machine learning in the field of IT operations.

- Instead of siloed teams monitoring their own parts of the infrastructure, the idea is to collect all the important monitoring data in one place and then use machine learning to identify patterns and detect abnormalities.

Machine learning

- based on the principle of systems responding to data, and, as they are continually exposed to more of it, adapting their actions and outputs accordingly.

- Supervised learning
  - initially use existing data to train a system.

- Unsupervised learning
  - requires input data, but this approach does not use existing output data from previous decisions and there is no supervisor. Instead, the machine learns from the input data alone.

Continuous integration, continuous delivery, and continuous deployment

descriptive terms for a collection of practices primarily associated with software engineering, which are central to the philosophy of Lean and Agile software development.

- **Continuous integration** integrating, building, and testing code within the software development environment.

- **Continuous delivery** software can be released to production at any time. Frequent deployments are possible, but deployment decisions are taken case by case, usually because organizations prefer a slower rate of deployment.

- **Continuous deployment** changes go through the pipeline and are automatically put into the production environment, enabling multiple production deployments per day. Continuous deployment relies on continuous delivery.

* CI/CD does not suit every situation

Information model

There is no single definition of an information model, but an effective one will typically consist of several core elements including:

- definitions of key facts, terminology, activities, and practices within the organization

- structural representations of key components of the organization's technology and business services, and the relationships between them.

- some organizations may choose to create an information model from scratch, others may decide to adopt (at least initially) one of a number of established models that focus on technology operations in large organizations.

Automation of service management

Integrated service management toolsets

- automate records and workflow management and act as engagement and communication tools, with many aiming to support a holistic information model for service management.

- used to raise, classify, prioritize, escalate, and resolve issues, requests, and changes for items and areas of business and technology infrastructure. This includes real-time management of expectations for delivery and fulfilment, approval, escalation, and consumption, as well as other administrative functions around inventory, finance, and lifecycle management.

- Service management toolset expectations
  - effective automation of workflows
  - effective inventory, monitoring, and event management
  - effective integration

ITIL service value streams

A useful way of thinking about value streams is as visualizations of journeys through the activities in the service value chain for specific scenarios or types of demand.

- Different types of incident may require different value streams to describe the work required in each case
- Different types of consumer demand may require different value streams

- A value stream will generate outputs that can be used to create intended outcomes

- In some cases, outputs can serve as input triggers for other value streams within or outside the organization

ITIL service value chain

An operating model for service providers that covers all the key activities required to effectively manage products and services.

- mention one, some, or all value chain activities, depending on the context
- repeat value chain activities, depending on the work in progress.

Value stream

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

- At the value stream level, the unit of work can be defined as the consumer request that needs to be fulfilled, which may change to the service portfolio item that is being created during the flow of activities in the value stream.
- At the step level, the unit of work can be defined as the requirements that need to be assessed, which may change to the design characteristics defined in the service design package during the implementation of the value stream.

Value stream

relationship between value chain activities, the value stream, the steps in a value stream, the actions within a step, and the tasks within an action

A value stream is initiated by demand; for example:
- an incident generated by a monitoring tool
- a request submitted by a user.
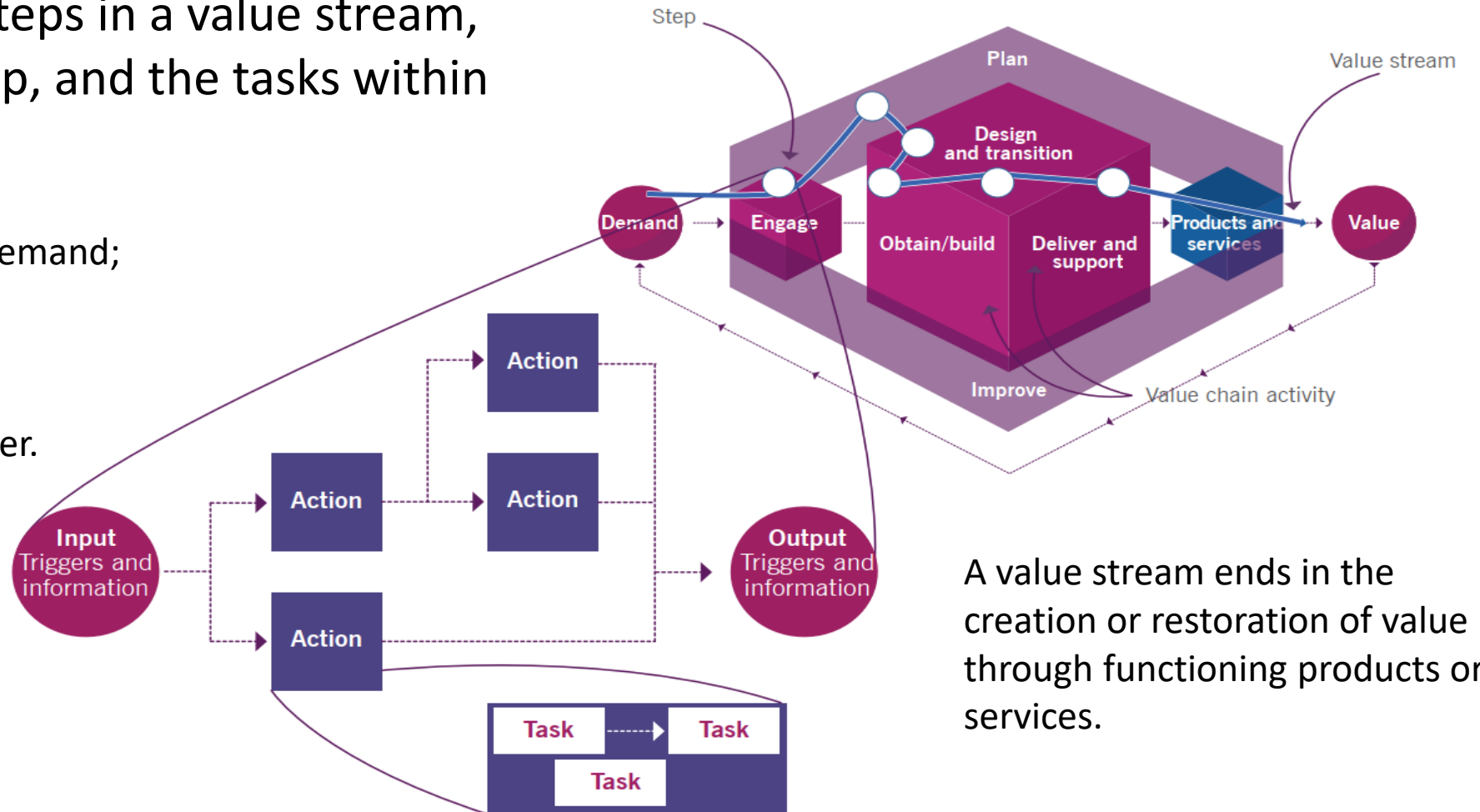
A value stream ends in the creation or restoration of value through functioning products or services.

Value streams and organizations

- there can be value streams at every level of granularity and they can be defined for a single person, a team, a business unit, etc

- value streams are defined in the context of a system that is established to create value for the organization, its customers, and other stakeholders.

- value stream will represent work across different teams, impacting different stakeholders, using different processes, tools and people, and sometimes even different suppliers.

Value stream considerations

- Selecting the right perspective

- Start and end points

- Flexibility

- Granularity

- Identifying steps

- Step order

- Mapping to the service value chain

- Mapping to practices

Designing a service value stream

1. Define the use case or scenario for the value stream
2. Document the steps required to traverse the service value chain from demand through to value
3. Map the steps from to the service value chain
4. If necessary, fragment the steps into actions and tasks
5. Identify the practices and associated resources that contribute to the successful completion of each step, action, or task

✓ The five steps above should be completed in a collaborative way: as a series of meetings or workshops, for instance.
✓ The first stage of documentation is to establish a broad and general understanding, or baseline, of the work needed to respond to demand and generate value.

Designing a service value stream

When a baseline has been established, the value stream can be further explored and optimized by:

- creating simple simulations to test the flow of work
- eliminating work that does not create meaningful outputs, outcomes, or benefits
- shifting work left
- delaying work that can introduce variance in quality, cost, or timeliness6
- introducing feedback loops and escalation mechanisms to improve the quality of the
- outputs and benefits produced by the value stream
- identifying opportunities to automate steps, actions, or tasks that will accelerate the flow of work
- identifying and managing bottlenecks and constraints, which may include redesigning
- the value stream around the constraint
- introducing triggers to review and, if necessary, improve the value stream.

Describing a step of the value stream

- Name of the step
- The input trigger(s)
- Information
- Practice contributions
- Actions and tasks
- Constraints
- Outputs
- Estimated or target lead time

Value Stream: design / transition new service

Design considerations

- Determine how the work will be managed
- Establish the correct level of oversight
- Establish the correct level of bureaucracy
- Join all of the activities from all of the required practices
- Ensure that the organization has a clear understanding of the customer's intended goals and expectations
- Understand the customer's journey from demand to value and define requirements from the customer's point of view rather than relying solely on internal perspectives or the prior experience of team members

The journey from demand to value

1. Acknowledge and document service the servic requirements (engage)
2. Decide whether to invest in the new service (plan)
3. Design and architect the new service to meet customer requirements (design and transition)
4. Build, configure, or buy service components (obtain/build)
5. Deploy service components in preparation for launch (design and transition)
6. Release new service to customers and users (deliver and support).
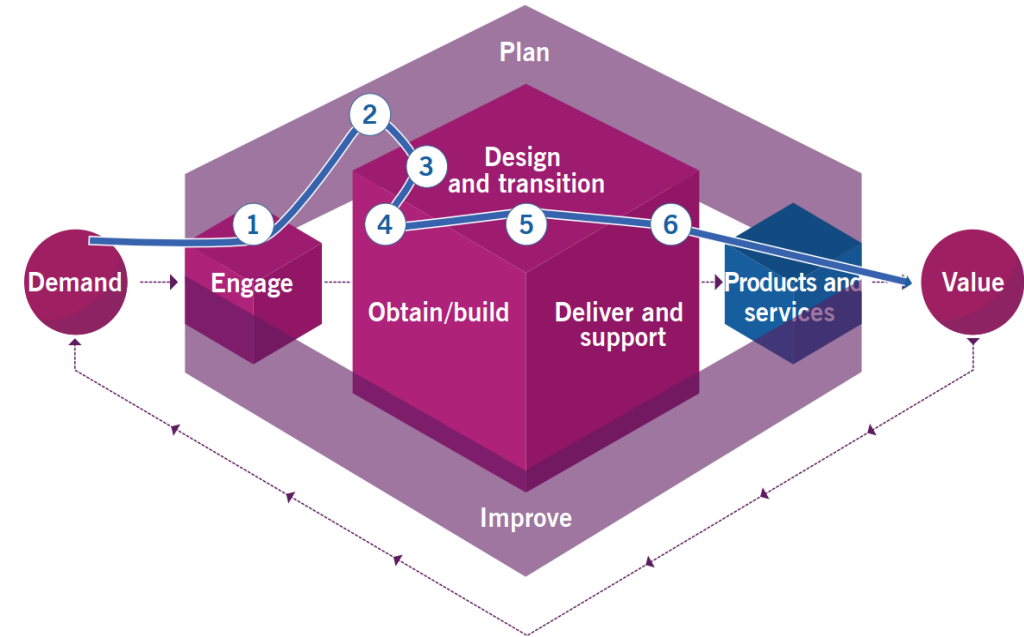
ITIL practices contribute to a value stream for a new service

- Service design
- Software development and management
- Deployment management
- Release management
- Service validation and testing
- Change enablement

Value Stream: user support

Design considerations

- Identifying stakeholders and what the creation or restoration of value means to them
- Taking an outside-in approach to understanding the impact of incidents and connecting these assessments to descriptions of value for various stakeholders
- Defining first the scope of the value stream and then defining a single value stream that encompasses all activities within scope to create an end-to-end, holistic vision of how support creates or restores value.
- Highlighting activities performed by partners and suppliers that might introduce risks or dependencies to the successful creation or restoration of value.
- Understanding what (or how) systems should be integrated and data shared across multiple centres of activities.

The journey from demand to value

1. Acknowledge and register the user query (engage)
2. Investigate the query, reclassify it as an incident, and attempt to fix it (deliver and support)
3. Obtain a fix from the specialist team (obtain/build)
4. Deploy the fix (design and transition)
5. Verify that the incident has been resolved (deliver and support)
6. Request feedback from the user (engage)
7. Identify opportunities to improve the overall system (improve).
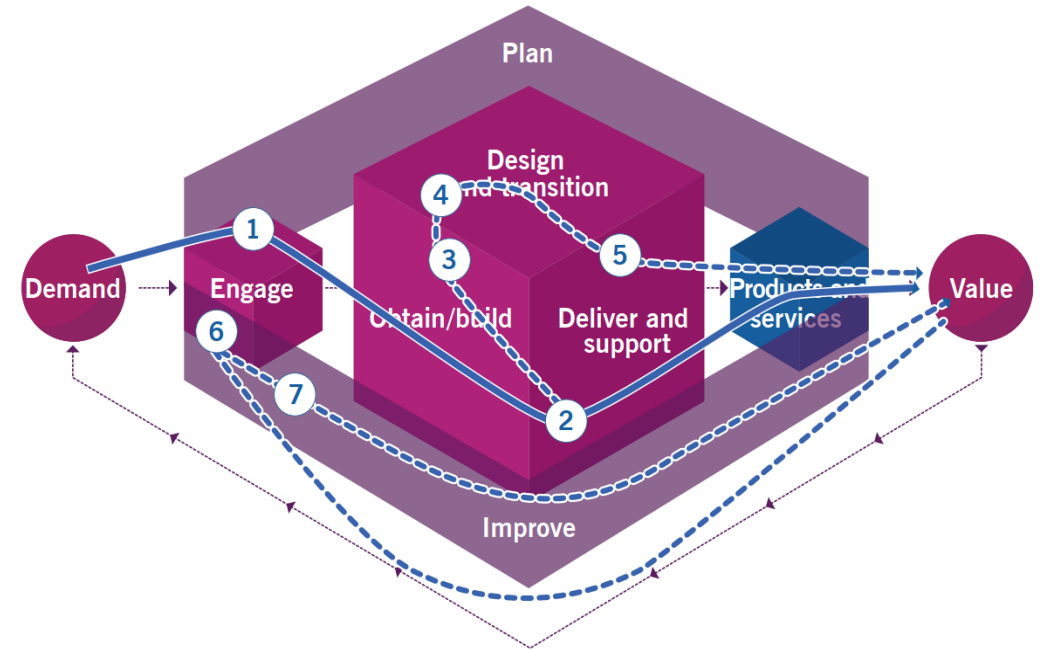
ITIL practices contribute to a value stream for user support

- Service desk
- Incident management
- Problem management
- Knowledge management
- Service level management
- Monitoring and event management

Prioritizing and managing work

- Organizations are rarely able to balance capacity and demand, leading to queues or backlogs of work, which increases the risk of unhappy customers, users, and other stakeholders.

- In order to mitigate this risk, organizations have a wide variety of techniques to either manage demand or prioritize the various types of demand.

Managing work as tickets

- A ticket is a record of work

- ticket represents a discrete unit of work and its current state within its expected lifespan. Without this, the risk of chaos, data and information loss, and a lack of accountability is high

- Even after the work has been completed, the archive of recorded tickets continue to provide value as a source of data for management reporting and analytics

Prioritization and demand management

- The prioritization of work to create, deliver, and support services is necessary for co-creating value while minimizing the costs and risks that arise from unfulfilled demand and idle capacity

- reducing variations in demand for value using pricing mechanisms based on volume of work, when demand occurs, quality

- altering customer expectations about the length of time needed to complete work

- reducing variation in how much demand is taken into a value stream or step

- increasing how much demand can be satisfied within a given period of time

- reducing the cost of increasing or decreasing capacity

- using 'shift-left' to deflect demand or prevent demand from being created

How to prioritize work

- The prioritization of work can occur at various levels of granularity, with a variety of implications for the wider system, and with various levels of impact on user or customer experience.

- prioritization should be data driven, rather than emotionally driven

Techniques for prioritizing work

- Resource availability
- Current workload
- Age : First-in, first-out, Last-in, first-out
- Time factors : Shortest item first, Longest item first
- Economic or financial factors
- Economic penalties
- Source or type of demand
- Triage
- Weighted Shortest Job First (WSJF), prioritization considers the Cost of Delay and the duration of the work

Swarming

Swarming is a method of managing work in which a variety of specialist resources or stakeholders work on an item until it becomes apparent who is best placed to continue with the work, at which point the others are freed up to move on to other work items

- creating a single cross-functional and self-organizing team with a dynamic and flexible structure, and which reacts to the work that comes in
- relying heavily on good communication and collaboration
- focusing on avoiding queues
- sharing and encouraging the development of skills and experience across all team members

Shift-Left approach

- Shift-left involves moving work closer to its source
- interdependent tasks should be combined rather than performed as a sequence of specialized tasks
- Shift-left is an integrated approach to improving the flow, efficiency, and effectiveness of work
- move the delivery of work toward the person with the aim of improving lead times, resolution times, customer satisfaction, and efficiency
- moving bug-fixing activities to the frontline of build and test teams earlier in the lifecycle

Commercial and sourcing considerations

- A partner is an organization that provides products and services to consumers and works closely with its consumers to achieve common goals and objectives

- A supplier is an organization that provides products and services to consumers but does not have goals or objectives in common with its consumers

- 'Vendor' is a generic term used to describe any organization that sells a product or service to a customer.
  - a vendor can either be a partner or a supplier,
  - it can have no direct service relationship with the service consumer. A vendor can also be a partner in some areas and a supplier in others

'Build vs Buy' considerations

These decisions should be made using data and evidence rather than emotion or unconfirmed reports

- Building service components using existing resources
  - the service component heavily relies on knowledge of the organization and its business
  - customer demand for personalized products
  - the ecosystem is volatile or subject to rapid change
  - service components lack mass-market adoption
  - compliance to standards and policies is a high priority

'Build vs Buy' considerations

- Buying service components from partners and suppliers
  - in-house resources are scarce or highly utilized in other areas
  - the skills or competencies needed to create, operate, and maintain the component are highly specialized and would take time to build
  - the processes to build products and services are immature and need to be developed and implemented
  - components or services are highly commoditized
  - the demand for service components is low
  - the service component is not core to the strategy, brand
  - creating the service component is predictable and repetitive work
  - the ecosystem is stable and generally not subject to volatility

Defining requirements for service components

requirements for service components should cover a broad range of topics and should not be limited to the functional needs that are articulated by users

- maintainability and supportability of the component
- geographic location of vendor resources
- cultural alignment between the organization and the vendor
- cost of service consumption (e.g. skills needed in-house, and financial outflow over time)
- alignment with the organization's business, technical, and information architecture
- vendor brand and public image
- interchangeability of vendors

Defining requirements for service components

The MoSCoW method is a simple prioritization technique for managing requirements. It relies on cooperation, and often negotiation, between all relevant stakeholders.maintainability and supportability of the component

- Must have The mandatory requirement covering the most important needs.

- Should have The requirements that should be included if possible.

- Could have The requirements that could be included if they do not affect the 'should' or 'must' requirements.

- Won't have Requirements that will not be included this time but may be included in a future release.

Selecting a Suitable Vendor

When looking for a vendor, organizations typically publish requirements for services or service components and invite potential partners and suppliers to respond

- **Request for quote (RFQ)** is used when requirements have been defined and prioritized, and the organization needs information on:
  - how vendors might meet requirements
  - how much it might cost to meet the published requirements.
- **Request for proposal (RFP)** is used when the problem or challenge statement has been clearly articulated, but the exact requirements or specifications of the service components are unclear or likely to change. Vendors need to provide recommendations or potential solutions, articulating benefits and outcomes as well as costs.
- **Request for information (RFI)** is used when requirements are unclear or incomplete and external assistance is needed to refine or add requirements. RFIs are often followed by an RFQ or RFP.

Sourcing models and options

The selection of a particular sourcing model will reflect the organization's framework for managing, reporting, auditing, and ensuring compliance with the organization's vision, mission, ethics, and values across its service supply chain

- **Insourcing** the organization's existing resources are leveraged to create, deliver, and support service components
- **Outsourcing** the organization transfers the responsibility for the delivery of specific outputs, outcomes, functions, or entire products or services to a vendor
- **Onshoring** Vendors are in the same country.
- **Nearshoring** Vendors are located a different country or continent, but there is a minimal difference in time zone
- **Offshoring** Vendors are located in a different country or continent, often several time zones away from the organization

Outsourcing considerations

- whether it is important to retain knowledge and skills that might potentially be sent offshore
- what the impacts are to enterprise risk management when sending work offshore: which risks are mitigated, worsened, or created as a result?
- whether the industry or scope of work supports outsourcing
- the cultural or language differences between the organization and the vendor
- whether and how much management overhead will be added when outsourcing work.
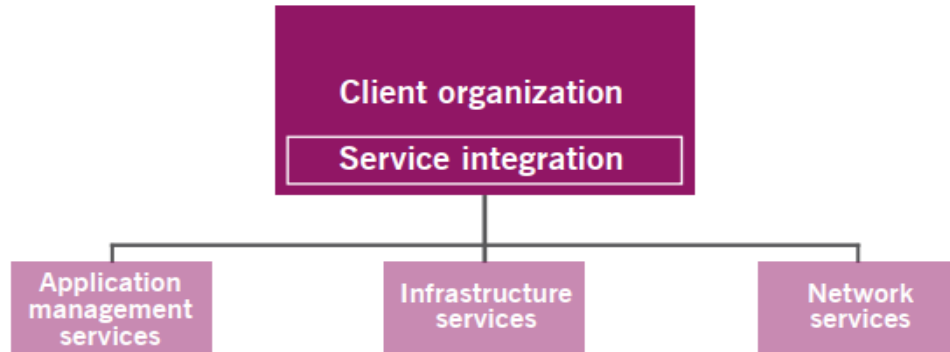
Service integration and management

Service integration and management refers to an approach whereby organizations manage and integrate multiple suppliers in a value stream.
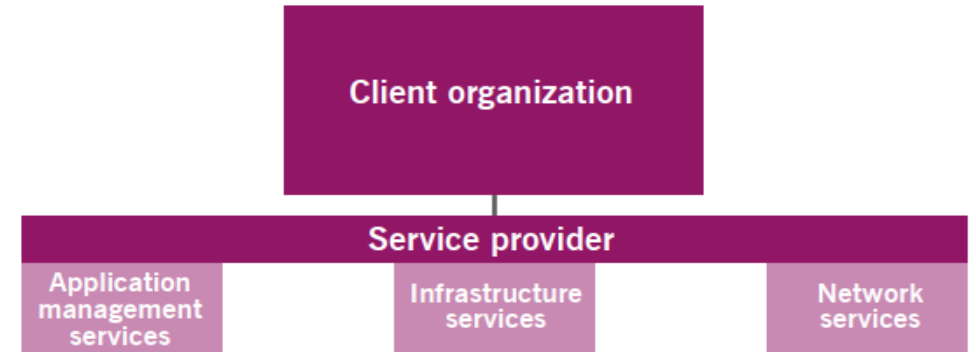
Service integration and management models:

- **Retained service integration** the retained organization manages all vendors and coordinates the service integration and management function itself.
- **Single provider** the vendor provides all services as well as the service integration and management function.
- **Service guardian** a vendor provides the service integration and management function, and one or more delivery functions, in addition to managing other vendors.
- **Service integration as a service** a vendor provides the service integration and management function and manages all the other suppliers, even though the vendor does not deliver any services to the organization.
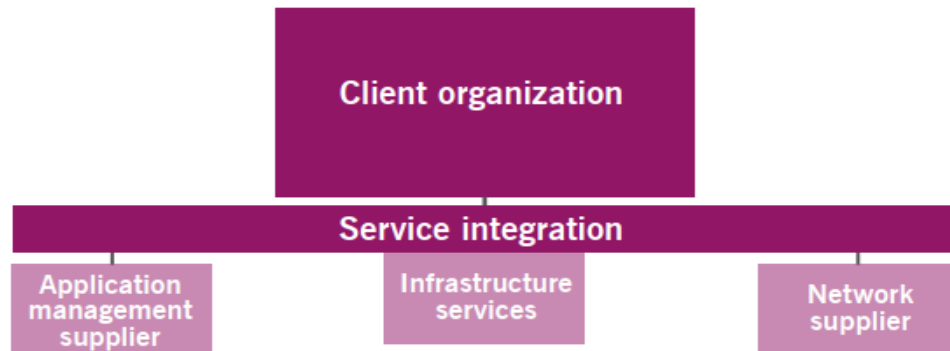
Service integration models
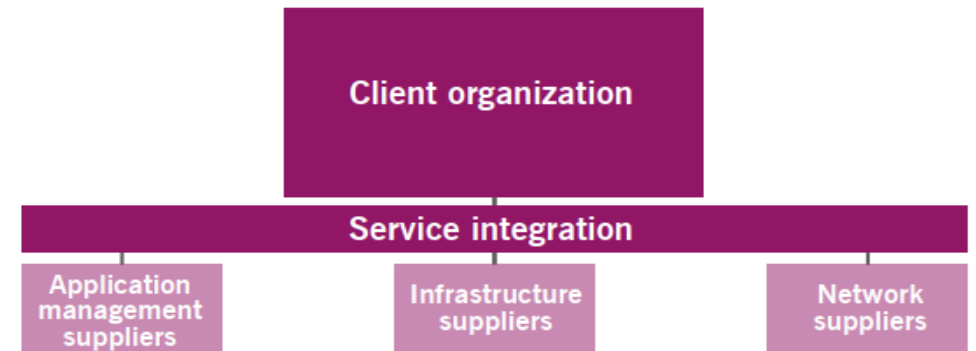

Model 1: Retained service integration

Client organization
Service integration

Application management services — Infrastructure services — Network services

Model 2: Single provider

Client organization
Service provider

Application management services — Infrastructure services — Network services

Model 3: Service guardian

Client organization
Service integration

Application management supplier — Infrastructure services — Network supplier

Model 4: Service integration as a service

Client organization
Service integration

Application management suppliers — Infrastructure suppliers — Network suppliers

Service integration and management considerations

- whether the organization is mature and capable enough to run or work within such a model
- the metrics that are appropriate to measure and incentivize:
- how the use of multiple vendors changes the design and measurement of service level agreements
- how service level agreements will influence behaviours among different vendors
- how vendors will be incentivized to align with organizational outcomes (or penalized if they choose not to)
- which vendor selection criteria are appropriate to this approach
- whether services will be delivered by a single supplier or require collaboration between vendors
- how service management practices will change as a result of service integration and management

Conclusion

- The evolution of business and technology stimulates the evolution of service management. This affects all of the four dimensions of service management:

- To support the needs of today's organizations, professionals in IT and service management should adopt a collaborative culture that is focused on value for the organization, its customers, and other stakeholders.

- They should consider and apply new ways of working that are more agile, more holistic, and more effective in a constantly changing, complex environment.

- Organizations, their leaders, and practitioners should continually develop their understanding of emerging technologies and their potential impacts.

- Cooperating and collaborating in the context of wider ecosystems is crucial because it enables the development and growth of cross-organizational value streams. Teams and organizations should manage internal communications and workflows in a holistic, flexible, and efficient way.