SELF-STUDY GUIDE

ITIL®4 SPECIALIST: HIGH-VELOCITY IT

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- ITIL® Foundation (ITIL® 4 edition)
- ITIL® 4 Specialist: Create, Deliver and Support
- ITIL® 4 Specialist: Drive Stakeholder Value
- ITIL® 4 Strategist: Direct, Plan and Improve

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Contents

Acknowledgements

We would like to sincerely thank the experts who have contributed to the design and development of the ITIL® Specialist: High-Velocity IT course.

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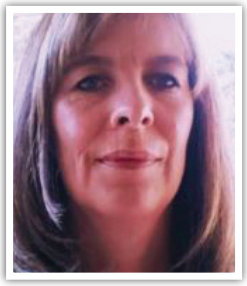
Simone Jo Moore Simone is recognized as a leading industry thought leader and is known as a “Service Management Mixologist” probing the hearts and minds of what makes business and IT tick to jumpstart people’s thinking to evolve behavior and actions at any level. People connected, knowledge shared, possibilities discovered, and potential realized are the active values that Simone uses to help organizations build a resilient foundation for their ongoing transformation and digital journey.

Simone is a contributing author to VeriSM Unwrapped and Applied, is a senior consultant, master trainer, author, podcast co-host, and mentor in various frameworks such as BRM, ITIL, KCS, DevOps, and SFIA. Simone is a HDI Faculty member and on the International Certification Standards Committee (ICSC) as well as an ICMI Senior Contact Centre Manager.

For the ITIL® 4 Specialist: High-Velocity IT course, Simone participated as a Lead Author in the design and development of core course components.



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Madeleine du Toit has been an active member of the IT Service Management community for over 20 years, of which 15 years are focused on training and consulting different elements of the ITIL framework. She has been part of and led several implementation projects within the IT Service Management framework, with a key focus on practical governance for maximum benefit. Madeleine is an accredited trainer for all products within the ITIL v3 certification scheme, she has assisted many thousands of people in getting their ITIL Foundation and ITIL Expert accreditations.

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My Notes

1

COURSE INTRODUCTION

Course Overview

The ITIL® 4 Specialist: High-Velocity IT course is based on the ITIL® 4 Specialist High-Velocity IT candidate syllabus from AXELOS. The course addresses the specifics of digital transformation and helps organizations to evolve towards a convergence of business and technology, or to establish a new digital organization.

With the help of ITIL® 4 concepts and terminology, activities, exercises, and examples included in the course, you will acquire relevant knowledge to pass the ITIL® 4 Specialist: High-Velocity IT certification exam.

The ITIL® 4 Specialist: High-Velocity IT course is designed to enable practitioners to explore the ways in which digital organizations and digital operating models function in high-velocity environments. It will help aspiring organizations to operate in a similar way to successful digitally-native organizations.

The course includes the use of working practices such as Agile and Lean, and technical practices and technologies such as Cloud, Automation, and Automatic Testing. The focus of these practices and technologies is on the rapid delivery of products and services to obtain maximum value.

Course Learning Objectives

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

- Understand concepts regarding the high-velocity nature of the digital enterprise, including the demand it places on IT.
- Understand the digital product lifecycle in terms of the ITIL operating model.
- Understand the importance of the ITIL guiding principles and other fundamental concepts for delivering high-velocity IT.
- Know how to contribute to achieving value with digital products.

Target Audience

The course aims at IT and service management practitioners who work in organizations that are becoming more digitally enabled. It will help those who are familiar with traditional IT and service management concepts to discuss 'digital' confidently, develop practical competencies, and integrate new concepts, techniques, and technologies into their ways of working.

Characteristics

- **Improvement Tool**: You should use this course as a tool to improve how you and your coworkers:
  - Provide products and services
  - Continually raise your standards of work
  - Trust and are trusted
  - Accept ambiguity and uncertainty
  - Commit to continual learning
- **Digital Value Chain**: The course includes the primary activities in the digital value chain, including what the practitioner does and the resources they use across the lifecycle of digital products to:
  - Make the right digital investments
  - Realize and deliver resilient digital products and services quickly

- Ensure that the service consumer realizes value from those products and services
- Assure the conformance of activities with governance, risk, and compliance requirements

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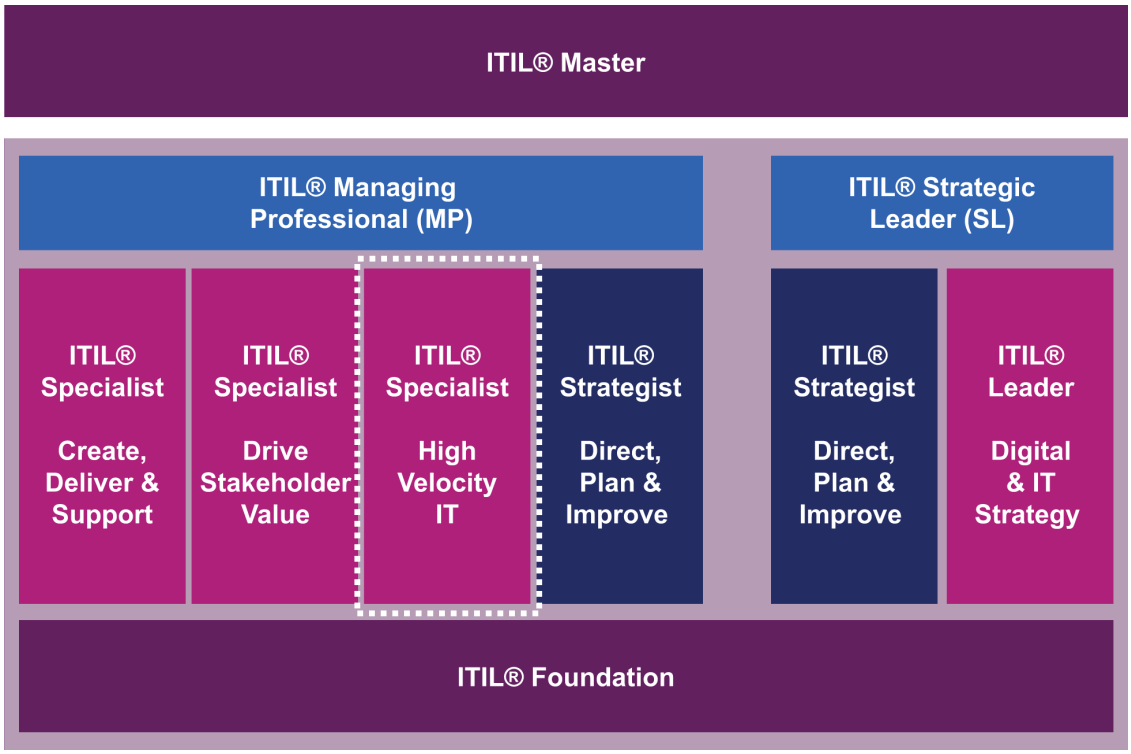
ITIL® 4 Certification Scheme



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ITIL® 4 Specialist: High-Velocity IT is one of the modules of the ITIL® Managing Professional (MP) stream. You need to pass the related certification exam for working towards the Managing Professional designation.

Course Components

Course Modules | Exam Information | Additional Components

Let's discuss what each component contains.

- **Course Modules:** The course is divided into various modules to explain the key concepts in a structured manner.
- **Exam Information:** The course contains Exam Preparation Guide and AXELOS Syllabus that will provide you with all the required information related to the certification exam.
- **Additional Components:** The course also contains additional components to better prepare for your certification exam, such as sample paper, practice questions, and glossary.

Module-End Exercises

At the end of each module, an exercise will be conducted to reinforce the learning of concepts contained in that module. These exercises will be application focused and consists of different types of activities, such as group discussions, presentations, and brainstorming.

Exam Details

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

- **Bloom Level**: 2 and 3
- **Exam Format**:
  - Close Book format
  - Web-based and paper-based
- **Questions**: 40 Multiple Choice Questions (MCQs) of 1 mark each
- **Passing Score**: 70% (28 marks out of 40)
- **Exam Duration**:
  - 90 minutes
  - 25% extra time for non-native English speakers (113 minutes in total)
- **Proctoring**: Live/Webcam

After completing this training, you will be planning to take the ITIL® 4 Specialist High-Velocity IT certification exam. To give you an idea about the certification exam, sample paper (or mock exam) is included within the course.

INFO

Sample Paper

The latest sample paper is included in the course during its development. AXELOS might come up with a newer version of sample paper.

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INTRODUCTION TO HIGH-VELOCITY IT

Key Terms Covered in the Module

High-Velocity IT is the application of digital technology for significant business enablement, where time to market, time to customer, time to change, and speed, in general, is crucial. It is not restricted to fast development and is required from innovation through development and operations to the actual realization of value.

Digital Technology the technology that digitizes something or processes digital data, such as text, sound, and images. Digitization is the process of transforming something from analog to digital form or expressing digital data in binary digits. Digital technology refers to digitized Information Technology (IT) and the parts of digitized Operational Technology (OT).

Information Technology (IT) is the application of digital technology to store, retrieve, transmit, and manipulate data (data processing), often in the context of a business or other kind of organization.

Operational Technology (OT) is the application of digital technology for detecting or causing changes in physical devices through monitoring or control or both.

Digital Transformation is a process of using digital technology to enable a significant improvement in realizing organizational objectives that are difficult to achieve feasibly through non-digital means.

Digital Product is a product that an organization store and deliver in its electronic format, and the consumers receive and use these products electronically.

Digital Service is the electronic delivery of information across multiple platforms and devices, for example, buying a physical product online.

Module Learning Objectives

At the end of this module, you will be able to:

- Discuss the need and nature of high-velocity IT in organizations.
- Explain digital technology and its primary components.
- Qualify an organization as digitally enabled.
- Explain transformation, digital transformation, and IT transformation.

Topics Covered

- High-Velocity IT
- Digital Technology
- Digital Organizations
- Digital Transformation

HIGH-VELOCITY IT

The Definition

High-Velocity IT is the application of digital technology for significant business enablement, where time to market, time to customer, time to change, and speed, in general, is crucial.

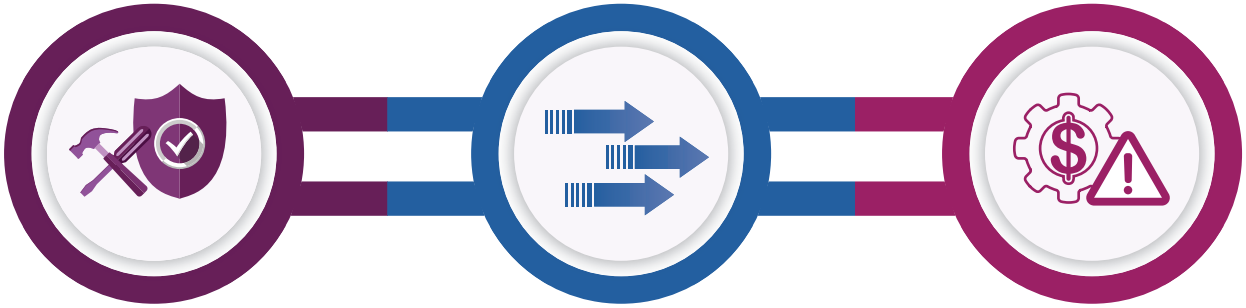
What does having a high-velocity IT mean?

Some digital organizations are more digital, and some are less. Likewise, some organizations have higher operating velocity than others. An organization having a higher velocity does not mean it will always be having a positive impact on the business. The velocity at which an organization should operate depends on its nature. Some organizations might require high velocity for its operations. However, for some organizations, a lower velocity can be beneficial. Therefore, high velocity cannot always be a better step. Organizations should not try to have higher velocity just for the sake of matching the competitor's standards.

Applying the high-velocity IT to the entire organization is not necessary. Let us consider an example of an organization that has dynamic customer-facing systems that require high-velocity IT way of working for their efficient management. On the other hand, its back-office has

legacy systems that the organization can manage more easily by following the traditional way of working.

Characteristics or Key Points Related to High-Velocity IT



Keep the utility and warranty intact

- High-velocity is not binary. It can be higher or lower.

Has speed and direction

- It means doing the right things in the right direction.

Involves costs and risks

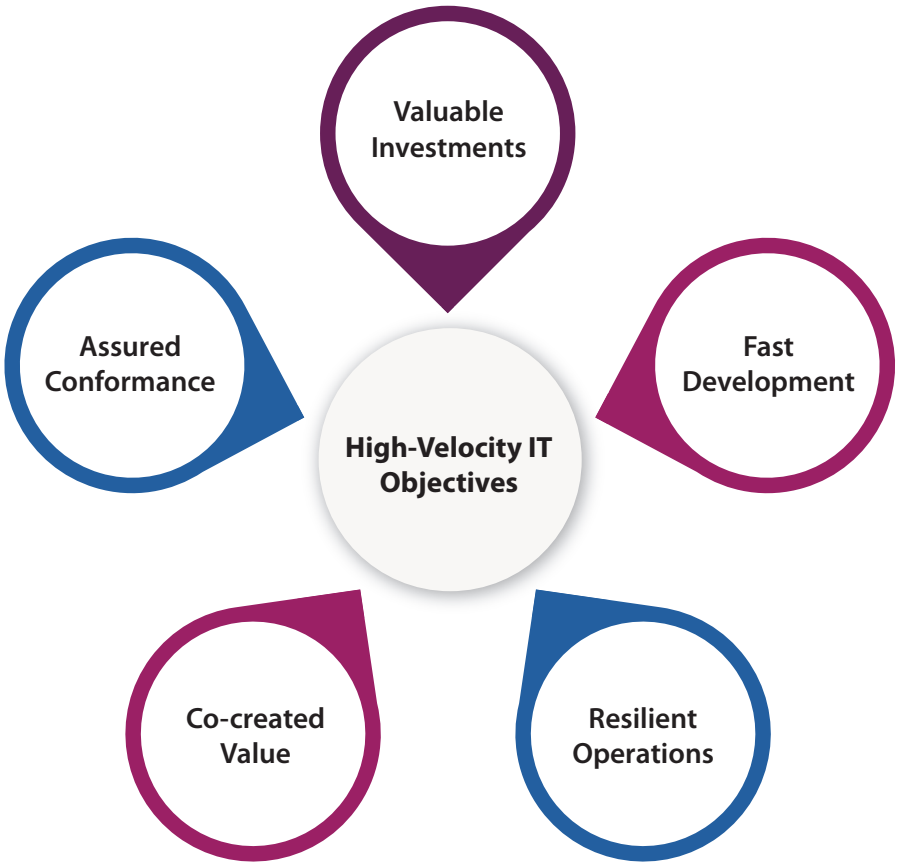
- Analyzing whether high-velocity will be a prudent investment is essential.

Let's discuss the key points in detail.

- **Keep the utility and warranty intact.**
  - High velocity often referred to as high performance. It does not mean it will negatively impact the utility and warranty of the solution. Some situations might occur where organizations consciously choose to take risks to gain a competitive advantage. Organizations also take some risks unconsciously due to a lack of understanding and dilution of warnings (before the information has reached decision-making levels). Decision-makers can also take risks due to the influence of one-sided targets.
- **Has speed and direction.**
  - In scientific terms, velocity has both speed and direction. You can interpret high-velocity IT as doing the right things to meet the business requirements and making the right decisions about investment and sustainability.
- **Involves costs and risks.**
  - High-velocity IT provides organizations with higher degrees of digital enablement. However, increasing the operating velocity of an organization always involves costs and risks, especially in the case of changing any step than a gradual improvement. Therefore, analyzing whether the increase in velocity will be a prudent investment is essential. Some organizations do not prefer to undertake transformation and increase the velocity due to:
    - Higher priorities in hand

- Unacceptable Return on Investment (ROI)
- Amount of cultural change involved that is too difficult to manage

High-Velocity IT Objectives



Let's discuss the aim of the five objectives.

- **Valuable Investments**: Strategically innovative and effective application of IT
- **Fast Development**: Quick realization and delivery of IT services and IT-related products
- **Resilient Operations**: Highly resilient IT services and IT-related products
- **Co-created Value**: Effective interaction between the service provider and the consumer
- **Assured Conformance**: Conformance to Governance, Risk, and Compliance (GRC) requirements

INFO

objectives

You will learn about the five objectives in detail in modules 10 to 15.

DIGITAL TECHNOLOGY

The Definition

Digital Technology is the technology that digitizes something or processes digital data, such as text, sound, and images.

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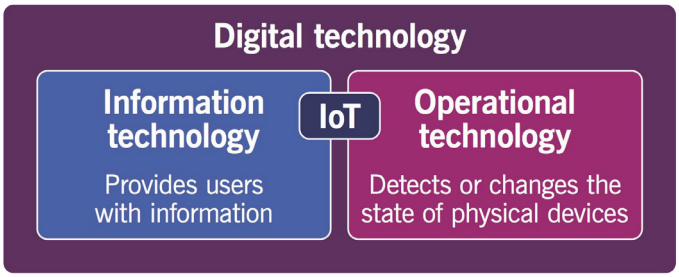


Example: Digital Thermometer

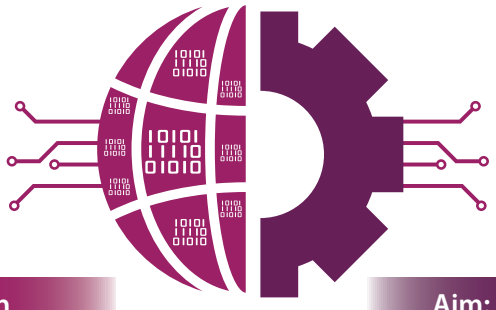
Digitization of analog thermometers resulted in digital thermometers that have a digital display to indicate the fever.

Digital technology is a combination of Information Technology (IT) and Operational Technology (OT). IT provides users with data and information, whereas OT detects or implements changes in physical devices.

Characteristics or Key Points Related to Digital Technology

Information Technology

- Store, retrieve, transmit, and manipulate data and create value when someone acts on a decision made using that data.



Operational Technology

- Use data to take physical action, such as car engine control and electricity grid.

Aim: Making information available to users

Aim: Using digitized data as an internal means to a physical goal

Let's discuss the key points in detail.

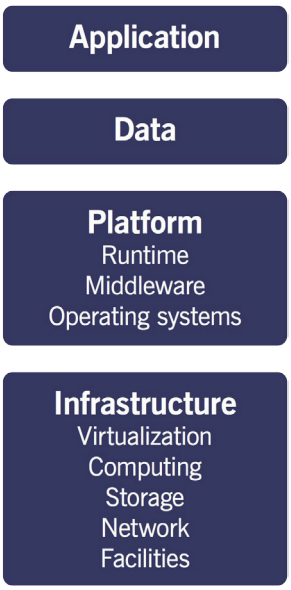
Information Technology – The Technology Stack

- Information is data that is useful in a particular context. Information Technology (IT) exists as Information Systems (ISs) that process all forms of digital data.
- An IS consists of hardware, system software, data, and applications. The information systems technology stack outlines the **processing of data** by an IS in more detail.

EXAMPLE

Processing of Data

- Presenting numbers or text on a screen
- Moving location on a map



Information System Technology Stack

Information Technology – The Value Stack

- Traditionally, organizations perceive the value of information technology as increased efficiency, providing **automated information systems**.
- Organizations primarily use the information derived from the traditional, automated information systems for internal decision-making to reduce uncertainty.
- More recently, narrow Artificial Intelligence, such as Machine Learning, has applied IT not only to process and provide data but also to create new information.

INFO

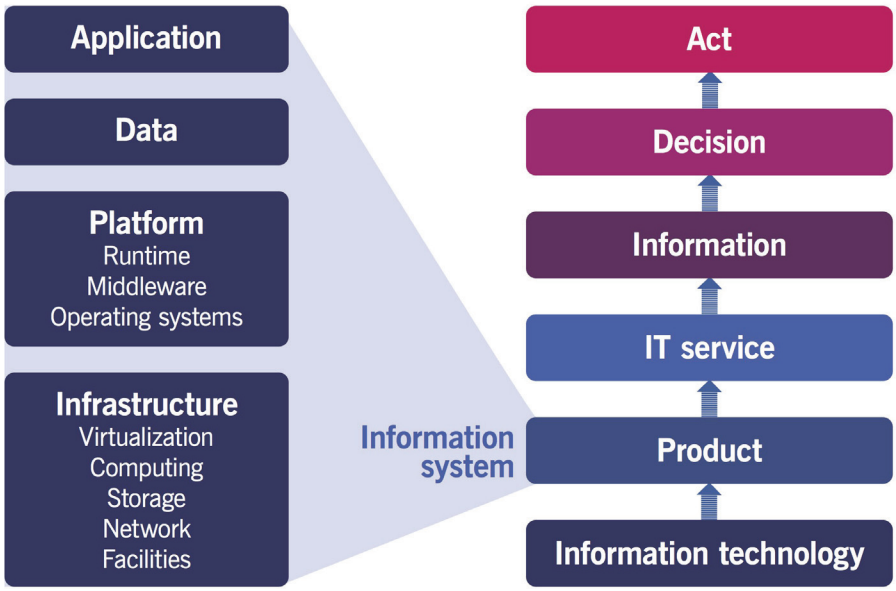
automated information systems

The systems that process data more quickly and reliably and at a cheaper cost compared to humans.

Organizations primarily use the information gathered from traditional, automated information systems for internal decision-making. In this way, they help to reduce uncertainty, which is the primary function of information.

An organization can realize the return on IT investments only when people or things act on decisions that have been improved by information derived from automated information systems. If no action is taken, then no value is created. In some cases, the action can be to do nothing, for instance, to avoid risk.

The following figure demonstrates the contribution of the IT stack in creating value through informed decision-making.



The IT Value Stack

Information Technology – The Different Perspectives

IT is the core concept for organizations worldwide. The people still misinterpret the term IT and have different thoughts for it, such as:

- An abbreviation for the organizational IT function or the IT department
- The IT infrastructure including generic workplace applications but not the applications that support specific business functions
- An organization's internal information systems
- Technical components used to create digital products
- Technology for **processing data**
- Digital technology for processing data to digitize and automate business

Processing Data

Processing data (data processing) is all about its storage, retrieval, transmission, and manipulation.

The course material is using IT as the application of digital technology for data processing.

Operational Technology

EXAMPLE

Physical Devices

Valves and pumps

- Operational Technology (OT) refers to **physical devices** that use digitized data to take physical action.
- OT devices can be as small as the Engine Control Module (ECM) of a car or as large as the distributed control network for a national electricity grid.
- Industrial Control Systems (ICS) is a major segment in the field of OT. It comprises systems that are used to monitor and control industrial processes, such as Supervisory Control and Data Acquisition (SCADA) systems, Distributed Control Systems (DCS), Remote Terminal Unit (RTU), Programmable Logic Controllers (PLC), dedicated networks, and organization units.
- Embedded Systems also play a vital role in the field of OT, along with a large subset of scientific data acquisition and control and computing devices.

Internet of Things (IoT) gives the ability to connect OT devices to other OT devices and information systems.

DIGITAL ORGANIZATIONS

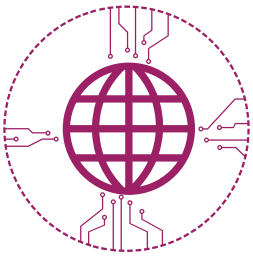
The Definition

Digital Organization is an organization enabled by digital technology to do business significantly differently or to do significantly different business.

Characteristics or Key Points Related to Digital Organizations

Digital Technology

- It is a significant enabler for internal processes.



Digital-First

- It is often part of the organizational culture to focus on how we do things around here?

Let's discuss the key points in detail.

- **Digital Technology**: It is a significant enabler for internal processes. Digital technology is a strategic part of the business

model and often part of products and services to do the business significantly differently or to do significantly different business makes. Therefore, digital organizations apply it to almost all primary activities than supporting activities.

- **Digital-First**: Digital technology can redefine a business, and sometimes even an industry. Therefore, digital-first is often part of the organizational culture to focus on how we do things around here? For better and for worse, the societal, political, and economic impact of IT is unprecedented. Digital organizations in which IT empowers the business than just supporting it, have an increased moral obligation to consider how they apply digital technology beyond their direct economic interests.

Digitally Enabled Organization

Digital technology is a significant enabler for digital organizations. Digital organizations are, therefore, also known as digitally enabled organizations that aim at doing business significantly differently or significantly different business.

What differently and different entail varies from organization to organization. The various aspects or elements that reflect this differentiation include:

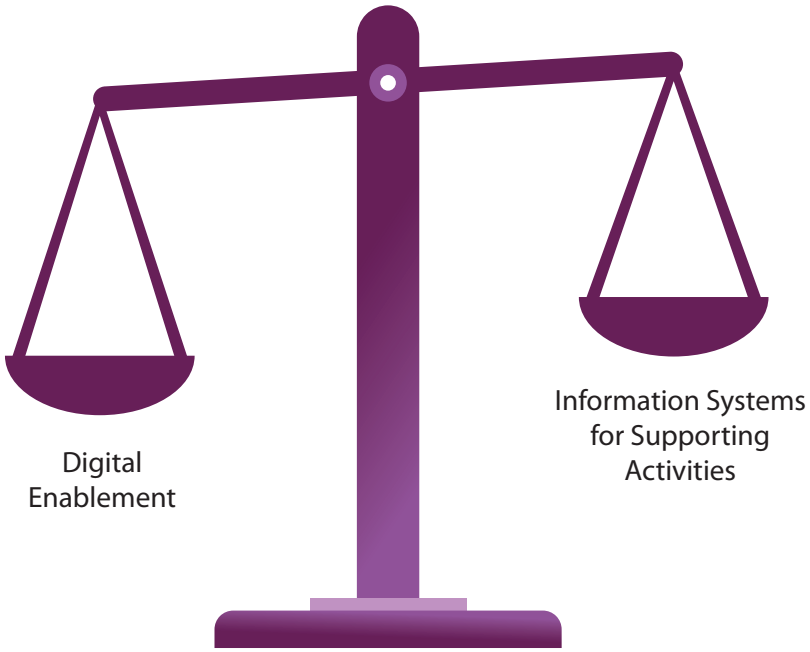
- Customer Experience
- Product or Service
- Business Model
- Operating Model
- Employee Experience

Digital organizations have these elements digitally enabled.

Qualifying as Digital

- Almost all organizations make some use of digital technology. Therefore, they are all digital.
- To qualify as a digital organization, it needs to express the differentiating aspects and the strategic use of digital technology.
- Some parts of organizations are more digital than others, leading to heterogeneous or hybrid organizations with the challenge of managing this diversity.
- Digitization usually manifests itself in an organization's products and services. Therefore, digitizing only the internal processes can be a sufficient qualifier for an organization to be digital if it results in significant benefit.

Digital organizations are not wholly and consistently digitized. Some parts are often more digitized than others.



Degree of Digital Enablement

Significantly digitized parts of an organization place specific demands on the people responsible for digital enablement. The demands depend on the degree of digital enablement and are usually higher compared to information systems for supporting activities.

Digital products and customer experiences do not only require innovative digital investments to create or maintain a competitive advantage, but these also have to be realized quickly. The resulting digital products, services, and customer channels have to be operationally resilient to enable users to use these well to achieve the desired return on investment. All of this still has to conform to external and internal constraints such as legislation, policies, and compliance requirements.

Implication

Digital enablement places non-trivial implications on the organizational operating model.

- Which resources do we require?
- How will these resources interact?

A major topic is centralization and decentralization of the IT function. The effect of these options on effectiveness and efficiency is always critical.

The operating model in digital organizations is based on the co-creation of value by both the service provider and the consumer to realize value from IT investments.

DIGITAL TRANSFORMATION

Understanding the Term 'Transformation'

The term transformation means major change. It does not imply a big bang. In some cases, it can be to achieve higher velocity. You can achieve transformation more successfully through many small changes. The term 'Transition' indicates a more gradual change.

Transformation is not only to do business significantly differently or to do significantly different business. It is also about reframing work – thinking about things differently or thinking about different things.

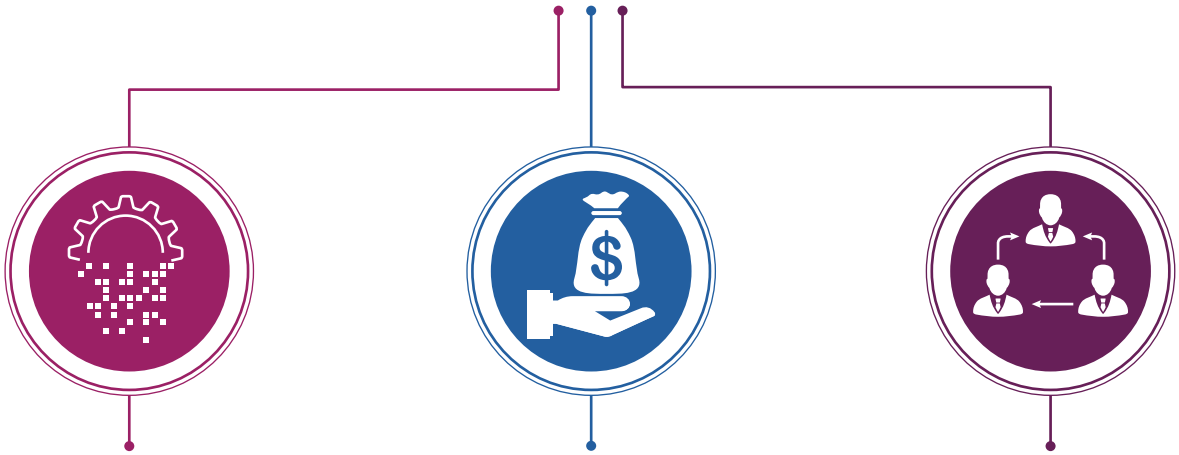
The Definition

Digital Transformation is a process of using digital technology to enable a significant improvement in realizing organizational objectives that are difficult to achieve feasibly through non-digital means.

For most of the new developments, the term digital transformation is extensively abused (misuse) for marketing purposes. You should, therefore, use this term carefully, or not at all, to avoid associating it with marketing hype.

People sometimes use 'digitalization' as an alternative term for digital transformation. Organizations should not use this term to avoid potential confusion with digitization, which is the technical process of changing something from analog to digital form.

Characteristics or Key Points Related to Digital Transformation



Indicates a digitally enabled change

- It can be iterative and incremental.

Involves major investments

- Digitization, robotization, or automation often require huge investments.

Requires organizational change

- People need to learn the different way of using digital solutions.

Let's discuss the key points in detail.

- **Indicate a digitally enabled change.**
  - Digital transformation is a digitally enabled transformation (or change) that can be iterative and incremental. It does not indicate what has transformed. The transformed entity is often a combination of the customer experience, product or service, business model, operating model, and employee experience.
- **Involve major investments.**
  - Digital transformation often indicates significant investment due to digitization, robotization, and other forms of automation to enable **digital business transformation** or **digital transformation of business**.
- **Require organizational change.**
  - The technological change often requires an organizational change. People need to learn how the organization uses digital solutions.

digital business transformation

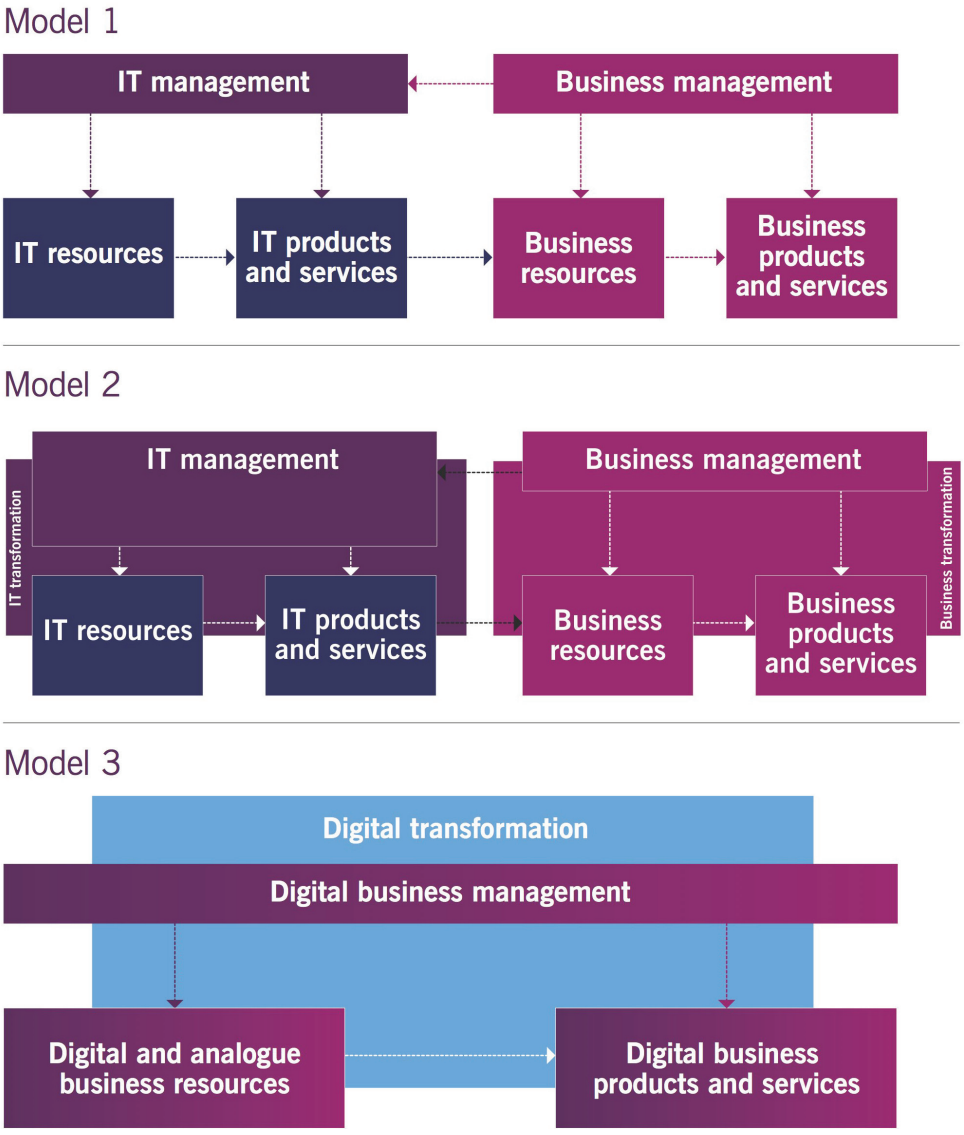
The digital transformation that enables organizations to do business significantly differently.

digital transformation of business

The digital transformation that enables organizations to do significantly different business.

Digital Transformation and IT Transformation

IT transformation is about how information systems and IT services are developed, run, and supported. It can include the decentralization of the IT function and its integration in digital lines of business, as shown in the following figure.



The term 'IT transformation' refers to a major change where business and IT act as separate organizational functions. The transformation denotes an improvement in providing IT services to its customers. Using the term 'IT Transformation' is inappropriate where business and IT do not act as separate organizational functions and are inseparably intertwined, such as in the case of most digital organizations. It is still useful to distinguish between the application of digital technology and its realization. However, it will be part of digital transformation only.

Let's discuss the models of transformation depicted in the preceding figure.

- **Model 1**: Before organizations undergo a digital transformation, they are managed separately from their IT service providers, whether internal or external. An IT service provider focuses on the management of IT resources to create and deliver IT products and services. On the other hand, a service consumer focuses on the management of its products, services, and resources, including those delivered or supported by the IT service provider. An organization acting as a service consumer can influence the management of the service provider.
- **Model 2**: The IT service provider and the service consumer can transform their management, resources, products, and services. These transformations can be interrelated, but they do not significantly change the way the two organizations work together or the role of IT in the service consumer organization.
- **Model 3**: When the organizations undergo a digital transformation, the role of digital technology in the business of the service consumer significantly changes. It includes some or all of the following activities:
  - Digitization of the organization's products and services
  - Digitization of the organization's management practices
  - Digitization of a significant part of the organization's resources
  - Integration of IT management into business management (development of a partnership with the IT service provider or the merging of management practices)

MODULE-END EXERCISE

High-Velocity IT Terminology

Lecture

Understanding the High-Velocity IT Terminology

Where and how do you use the following terms in your organization?

1. Digital Organization
2. High-Velocity IT
3. Digital Transformation
4. IT Transformation
5. Digital Products
6. Digital Technology

Sample Answer: Refer to the content provided in this module.

SUMMARY KEY POINTS

In this module, you learned that:

High-Velocity IT

- High-Velocity IT is the application of digital technology for significant business enablement, where time to market, time to customer, time to change, and speed, in general, is crucial.
- The characteristics of High-velocity IT include:
  - Keep the utility and warranty intact
  - Has speed and direction
  - Involves costs and risks

Digital Technology

- Digital Technology is the technology that digitizes something or processes digital data, such as text, sound, and images.
- Digital technology is a combination of Information Technology (IT) and Operational Technology (OT). IT provides users with data and information, whereas OT detects or implements changes in physical devices.
- An IS consists of hardware, system software, data, and applications. The information systems technology stack outlines the processing of data by an IS.

Digital Organizations

- Digital Organization is an organization enabled by digital technology to do business significantly differently or to do significantly different business.
- To qualify as a digital organization, it needs to express the differentiating aspects (Customer Experience, Product or Service, Business Model, Operating Model, and Employee Experience) and the strategic use of digital technology.
- Digital organizations are not wholly and consistently digitized. Some parts are often more digitized than others.

Digital Transformation

- Transformation is not only to do business significantly differently or to do significantly different business. It is also about reframing work – thinking about things differently or thinking about different things.
- Digital Transformation is a process of using digital technology to enable a significant improvement in realizing organizational objectives that are difficult to achieve feasibly through non-digital means.
- Digital transformation usually involves major investments and organizational change.

My Notes

3

HIGH-VELOCITY IT APPROACHES

Key Terms Covered in the Module

Lean is a way of optimizing the people, resources, effort, and energy of an organization for creating customer value with a focus on continuous improvement and respect for people.

Agile is a practice that promotes continuous iteration of development and testing throughout the development lifecycle of a product. Both development and testing activities are concurrent, unlike the Waterfall model.

Resilient is the ability of something to withstand or recover quickly from challenging conditions.

Module Learning Objectives

At the end of this module, you will be able to:

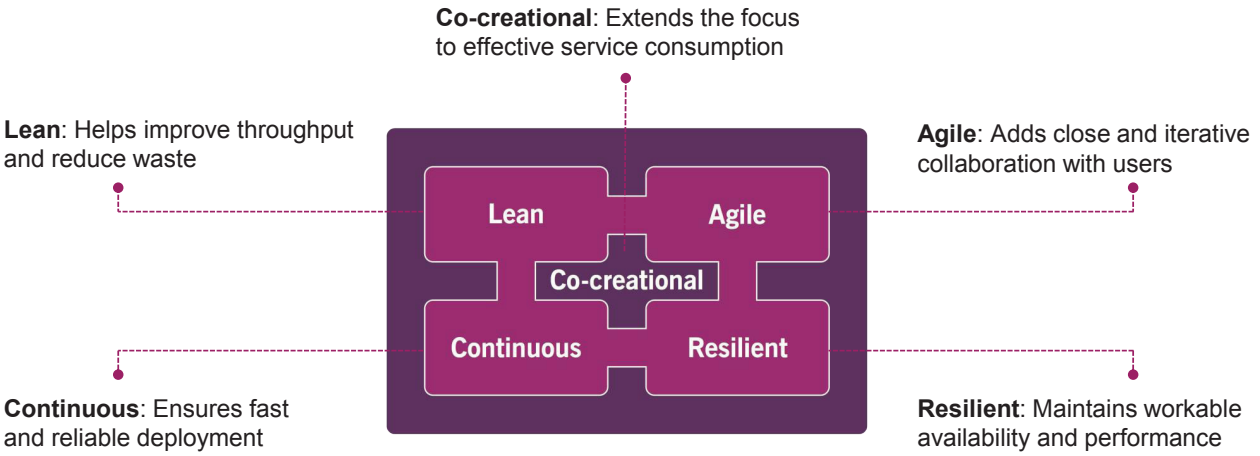
- List and discuss the popular approaches used for high-velocity IT.
- Understand the relevance of using high-velocity IT approaches.

Topics Covered

- Relevance of High-Velocity IT Approaches
- High-Velocity IT Approaches in Detail

RELEVANCE OF HIGH-VELOCITY IT APPROACHES

Nature of High-Velocity IT Approaches



Characteristics of High-Velocity IT Approaches

The high-velocity IT approaches are Lean, Agile, resilient, continuous, and co-creational. These technical approaches focus more on the tangible parts of information systems (the product). However, you can also apply many of these principles to the more abstract concept of IT service.

Organizations use Lean principles and practices to improve throughput and reduce waste. Agile builds on this with close and iterative collaboration with users. DevOps applies Lean and Agile principles (and more) to extend the scope of activities into delivery and operations by using Continuous Integration / Continuous Delivery techniques. The aim is to achieve fast, frequent, and reliable delivery by maintaining highly resilient operational IT services. Site Reliability Engineering (SRE) and DevSecOps also help in attaining greater resilience. Service-science promotes the co-creation of value between the service provider and the consumer, and this permeates (spread throughout) the other approaches.

Relevance for High-Velocity IT

Using the different approaches in isolation does not make these unique to high-velocity IT. On the other hand, using these approaches together helps fulfill the higher demands that digitally-enabled organizations place on IT. These approaches contribute to product development in various ways.

- Planning the right investments in digital products and services
- Getting the products and services developed and deployed quickly and reliably

