



Digital Transformation of Business Models: From concepts to implementation

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ABSTRACT

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This study aims to build a roadmap for the digital transformation of business models, including the phases and the activities needed to create a new Digital Business Model (DBM).

To achieve this goal, an extensive literature review was conducted to understand the terminology, definitions, and concepts of Digital Transformation, Business models, and Business Model Innovation. The study also includes the most popular business model innovation and digital transformation approaches presented in recently released books and scientific articles.

Semi-structured interviews were conducted with digital transformation experts and consultants to learn from their experiences while leading the digital transformation of business models' projects; this presented the opportunity to understand the approaches they adopt and the challenges they encounter in this process.

The final result of the study is a comprehensive roadmap that includes the phases and the activities that digital transformation leaders and executive managers should carry out to manage a digital transformation process for the company's business model.

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ABBREVIATIONS AND TERMS

DT=Digital Transformation

BM= Business Model

BMI= Business Model Innovation

DBM= Digital Business Model

BMC= Business Model Canvas

BMN= Business Model Navigator

CTO= Chief Technology officer

AI = Artificial Intelligence

VR= Virtual Reality

1 INTRODUCTION

Emerging technologies have changed how companies do business, creating a big challenge for companies to adapt to the radical changes in the market and the customers' expectations created by the new technologies.

Industry 4.0 technologies have created great opportunities for businesses to communicate with clients and improve their business processes and value creation. At the same time, however, it has produced many threats to the companies, forcing them to embrace digital transformation to change their business models, organisational structure, and business processes.

Companies may face the negative side of emerging technologies and suffer from their disruptive nature, as they may lose their clients to other competitors if they do not keep up with the rapid changes in the market. They may also lose their clients to new entrants that change the game's rules by adopting new digital business models.

Herein lies the importance of utilising digital transformation to help companies reach their clients faster, enhance the customer experience, as well as improve efficiency, resource utilisation, and value creation.

Digital transformation is a complex process that includes changes on several levels, such as organisational structure, business processes, and business models. Moreover, digital transformation is considered an ongoing process – it is not a destination; it is a journey.

Many companies have failed in their digital transformation process due to a lack of information and experience in leading such projects. Part of the problem is that companies do not have a single agreed-upon approach or standard to follow in the digital transformation process.

This paper investigates and studies the digital transformation concept in general, including its components and elements and the most famous Business model

frameworks used in the business academia ending with the business model innovation.

The final output of this research is a road map for companies, including practical phases and activities to guide them through the journey of the digital transformation of business models.

2 BACKGROUND AND OBJECTIVES

2.1 Research topic and research questions

This thesis aims to present and clarify the concepts and elements of digital transformation, business models, and business model innovation. It also seeks to build a roadmap for the digital transformation process of the business model, leading to business model innovation. The main research question can be formulated as follows:

1. How to make a successful Digital transformation to the Business Model?

To be able to answer the primary question, secondary questions need to be answered. Answering these secondary questions will remove the ambiguity associated with the concepts and processes of digital transformation, business models, and business model innovation:

- What is digital transformation? What are the elements of digital transformation?
- What is a business model? What are the components of a business model?
- What is business model innovation?
- How to develop a new business model?

2.2 Choosing the research topic

Over the past two decades, digital transformation has become increasingly popular in academia and the business world. The digital transformation process has become unavoidable for companies as they try to keep up with the tremendous technological development and the resulting changes in markets, customer behaviour, and ways of providing services.

According to Forbes, 84% of digital transformation projects fail, while other consulting giants such as McKinsey, BCG, KPMG, and Bain & Company claimed that failure of digital transformation projects might reach 95% (Forbes, 2022).

The main reason for this high probability of failure is the lack of management experience to manage the digital transformation process, as there is no agreed-upon, reliable strategic plan or vision to be followed to reach the desired goals of the digital transformation process.

I chose the topic of digital transformation, specifically, the digital transformation of business models, to develop a roadmap to help create a clear approach for managers and executives involved in managing the digital transformation process. This roadmap provides clear phases and activities that include the must-dos during the digital transformation journey.

2.3 The purpose of this thesis

The primary purpose of this study is to build a clear roadmap for the digital transformation process of business models, including the phases and the activities that should be performed to create a new innovative digital business model.

Moreover, the thesis presents a deep understanding and analysis of the definitions, concepts, and elements of digital transformation, business models, and business model innovation to remove the complexity and ambiguity associated with these terminologies.

2.4 Structure of the thesis

The theoretical framework of this thesis starts by investigating the concepts and elements of the digital transformation process, moves on to understanding the definitions and components of business models and ends with exploring the definitions and business model innovation frameworks. Moreover, it includes reviewing and analysing scientific research and the latest books on this subject.

Semi-structured interviews are held with experts and specialists in the field of digital transformation to discuss the process of digital transformation of business models. This discussion aims to benefit from their expertise and practical experiences and to know the best tools and approaches used to manage the process of digital transformation.

Finally, to answer the main research question, the literature review and the theme interview results are discussed, and the final road map for the digital transformation of the business model is developed, including the phases and activities needed to innovate a new business model successfully.

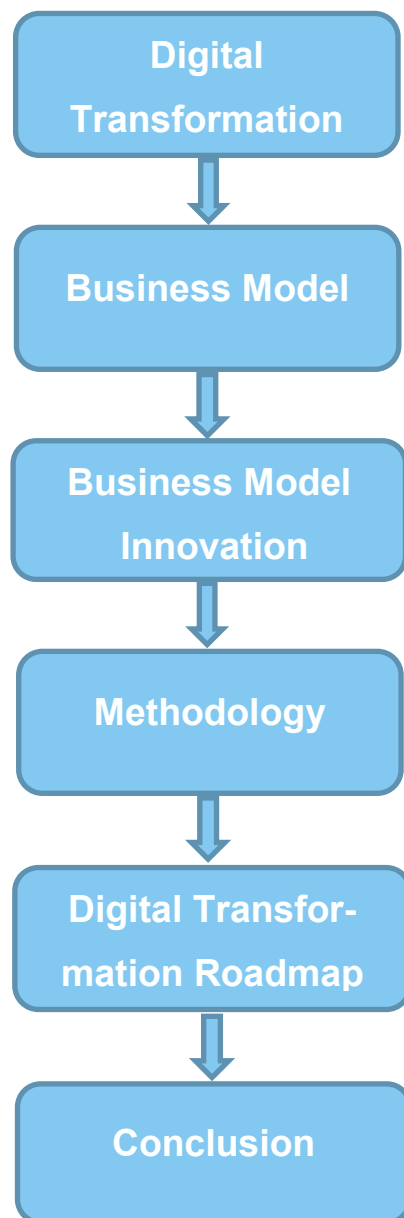


Figure 1. Thesis Structure (Sharaf, A. 2022)

3 Digital Transformation of Business Models

This part of the research investigates how to implement the digital transformation of business models. Although digital transformation significantly affects various business areas – such as business models, organisational structure, business processes, work culture, and people's digital skills this research will focus on the digital transformation of business models.

Defining the process terms and exploring its elements is essential to understand how digital transformation can be applied to business models. Digital transformation is not only about technology but also about strategy, process, culture, behaviours, and people (Perkin & Abraham, 2017, p. 50).

Therefore, the definitions and elements of digital transformation are examined. Moreover, the role of emerging technologies in the digital transformation process is defined.

To study the impact of digital transformation on the business model, it is essential to explore the business model and its components in detail. Furthermore, since there is yet to be consensus on the concept and definition of a “business model”, three different business frameworks are explored to deeply understand the elements of the business model and how it interrelates.

Finally, the business model innovation process is outlined, and three different business model innovation frameworks are explored to understand how to transform the business model digitally.

3.1 Digital Transformation

This section investigates various definitions and concepts of digital transformation to develop a deep understanding of this business phenomenon, as “Digital Transformation” is a buzzword surrounded by many ambiguities that need to be cleared. It explains the elements of the digital transformation process and the business areas that will be affected by the change in the company. It also defines the emerging technologies’ role as enablers in the digital transformation journey.

3.1.1 Digital Transformation definition

Based on the literature review, it was found that there is a consensus among practitioners and researchers that there is no agreed-on comprehensive definition of digital transformation.

Although digital transformation is a new phenomenon, (Ismail et al., 2017, p. 4) found early work regarding business transformation in the 1990s that focussed on business strategy and information systems, which can be considered the root of the term “Digital transformation” that we know today.

Many contributions from researchers, academics, and organisations have provided definitions of the term digital transformation. (Deloitte, 2019) argued that digital transformation stands for the use of technology to improve the performance of an organisation fundamentally. as digital technologies improve the business process and enable new business models. (Westerman, G., Calm  jane, C., Bonnet, D., Ferraris, P., & McAfee, 2011, p. 5) emphasised the same definition and claimed that digital technologies enhance customer engagement, business processes, and value creation.

According to (Schwertner, 2017, p. 388), digital business transformation is the application of technology to innovate novel business processes and models, empower employees' efficiency, and enhance customer experience, which leads to higher efficiency, revenue increase, and significant competitive advantage.

There could be many drivers for transformation in the market environment. Still, according to (Zimmermann et al., 2021, p. 4), technology is the current dominant transformation driver because it changes how companies do business and increases the risk of disruption of the existing business models.

(Zimmermann et al., 2021, p. 3) argued that the internet and emerging technologies – such as IoT (the internet of things), AI (Artificial Intelligence), Cloud computing, Mobile networks, and Cybersecurity – are business drivers and enablers of digital applications and services with rapidly changing markets.

Another definition of digital transformation claims that “digital transformation includes networking actors, such as businesses and customers, across the value chain segments and the application of emerging technologies” (Schallmo et al., 2021, p. 3). Schallmo et al. argue that digital transformation requires data analysis capabilities to support data-driven decision-making.

In some references, terms such as digitisation and digitalisation are wrongly used to describe the digital transformation process. According to (Zimmermann et al., 2021, p. 4), Digitisation and Digitalisation are terms related to technology, as companies Digitize information, processes, and roles. At the same time, Digital Transformation is about adapting new digital strategies and customer-oriented and value-driven digital business models.

3.1.2 Digital transformation elements

Digital transformation is fundamentally considered a business process aiming to enhance customer experience and increase operations efficiency.

According to (Schneider & Kokshagina, 2021, p. 390), there is yet to be a consensus among researchers regarding the elements of digital transformation. Despite that, most studies agreed that business models, the workplace, performance management, mindset and skills, and IT capabilities are all common elements of digital transformation.

As presented in Figure 2, Schwertner has argued that "digital business transformation consists of seven elements: 1) business model, 2) organisational structure, 3) digital skills of employees, 4) digitisation of business processes, 5) IT infrastructure, 6) digitisation of products/services, 7) digital channels for interaction with clients." (Schwertner, 2017, p. 389).

Moreover, (Matt et al., 2015, p. 340) explained that, "regardless of the industry, the digital transformation process has common elements; these elements can be associated with four dimensions: use of technologies, changes in value creation, structural changes, and financial considerations".

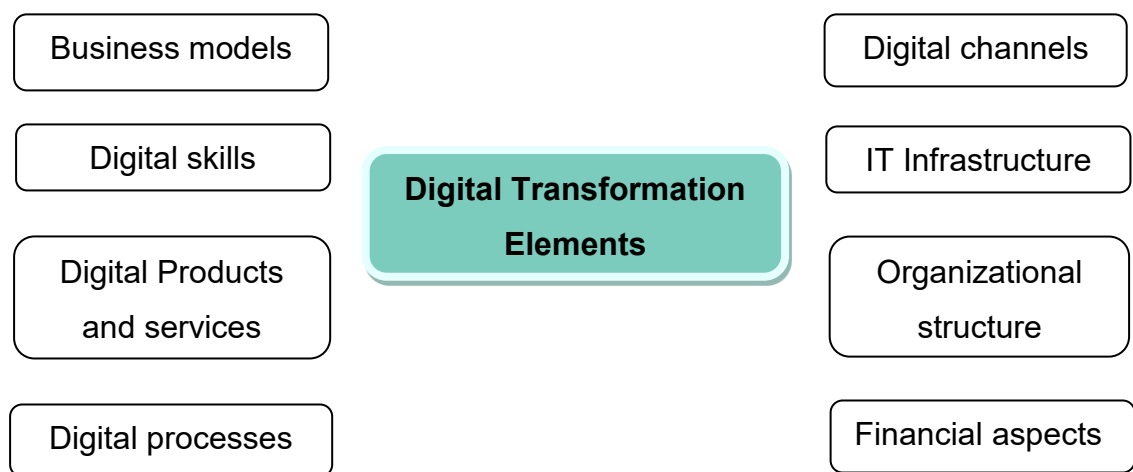


Figure 2. Digital Transformation Elements (source : (Schwertner, 2017, p. 389)).

From the preceding, it can be concluded that digital transformation is not limited to the application of emerging technologies as it involves the transformation of main business activities and organisational structure and impacts almost every business area in the company creating a significant change in the company's way of doing business. Therefore, companies must formulate a strategic approach to manage their digital transformation project (Matt et al., 2015, p. 339). Moreover, a successful digital transformation needs a change-supporting culture and motivated employee involvement, as "the human factor is more important than the technology itself." (Verina & Titko, 2019, p. 720).

3.1.3 Emerging Technologies as enablers

Understanding the position of emerging technologies in the digital transformation process is essential, as many people wrongly think that digital transformation is only achieved by deploying digital technologies in their companies. But, as explained earlier, digital transformation is a business process that comprehends all business areas where technology works as an enabler.

According to (Zimmermann et al., 2021, p. 3), the internet and other emerging technologies are business drivers and enablers of digital applications and services. (Perkin & Abraham, 2017) emphasised that “technology can be a powerful enabler of change, with significant opportunity deriving from three complementary but overlapping elements: analytics, tracking and measurement; automation, communication, and infrastructure; artificial intelligence, and machine learning.” Furthermore, (Aagaard, 2018, p. 149) claimed that using digital technologies is an enabler for many developments in business operations, offers, and the whole market competitive scene. (Schallmo, A., & Daniel, 2018, p. 35) stated that the business model is digitally transformed by utilising technology (the enabler) inside all the business model elements to boost the digital capabilities and build the value network in addition to customer experience digitally.

Without a doubt, technology is a great enabler that supports business transformation, but it cannot achieve this change independently; digital technologies need new business models to transform the business. (Stampfl, 2015, p. 141) emphasised that digital technologies and products crave new business models to be able to compete and seize a good portion of the market.

Confirming the role of technology as an enabler, (Zimmermann et al., 2021, p. 182) claimed that using digital technologies enables human beings to communicate with autonomous objects regardless of their local context. Moreover, information exchange enables better decision-making and data-driven planning. For a long time, new business opportunities appeared and led to the digitalisation of products and services due to the exploitation of digital technologies such as IoT, AI, cloud, big data, cybersecurity, and mobile systems.

3.2 Business Models

This section will determine definitions, concepts, and components of “business models”. Moreover, three business model frameworks will be reviewed in detail to have a deeper understanding of the components of the business model and to know how these models work and how the components interact with each other.

The business model has been an interesting topic to many business researchers and practitioners and has been the subject of an increasing number of published academic research and business articles.

The study of business models has grown significantly, theoretically and practically. the business model concept was discussed in many conferences and business circles and numerous academic and practitioner science papers have been published on it , (Otola & Grabowska, 2020, p. 2). According to (Teece, 2010, p. 174), The notion of the business model lacks academic foundations in many business studies, which represents a challenge for those interested in studying it.

Nevertheless, there are many attempts to define the business model concept. (Afuah, 2014, p. 24) define the business model as a framework or formula for value and revenue creation. (Osterwalder et al., 2012, p. 14) explain the function of the business model can be understood in terms of how a business can generate, deliver, and grasp value. Zott and Amit define the business model as “an activity system designed and enabled by a focal firm to meet perceived market needs and create value for all stakeholders involved” (Zott & Amit, 2015, p. 4).

According to (Gassmann et al., 2014), the business model can be defined by identifying the targeted customers, the products and services to be sold , the offering process, and the business profitability (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 7).

(Tucci & Afuah, 2003, p. 51) argued that a business model should identify the targeted customers and the value offered to them and to comprehend the means of creating, pricing, and providing the value.

The business model definitions and interpretations presented above emphasised the significance of the value notion in the formation of a business model, and it is agreed that it outlines how a business generates and captures value.

(Otola & Grabowska, 2020, p. 4) claim that the notion of value is the concept that dominates the business model, as its components seek to create, deliver, or capture the value.

The business model defines the value proposed to the customers and the cost and partners needed to produce and deliver it. Also, the business model can be seen as a combination of elements and features that interact intricately to determine the company's profitability (Kavadias et al., 2016, p. 4).

(Otola & Grabowska, 2020, pp. 4–5) confirm the dominance of the value dimension in the business model and argue that for a company to maintain its potential to produce value, adjustments and innovative solutions in a business model are required.

The definitions of a business model that have been presented emphasise that the concept of business model is all about value as it outlines the process through which a business generates, deliver, and grasp value.

3.2.1 Business model frameworks

This section explores and analyses three business model frameworks to understand their components and functions and how their elements relate and interact to generate, deliver, and grasp value. Also, before exploring the business model innovation process, it is essential to understand what the business model is all about (Afuah, 2014, p. 24). Investigating the business model frameworks is helpful as it offers a common language to understand the capabilities of a business and clarify the integration and congruency required among the elements of the business model. Moreover, it explains the nature of business models as they become more change resistant and less flexible due to the development and strengthening of interdependencies over time (Christensen et al., 2016, p. 33).

Business Model Canvas (BMC)

Business Model Canvas (BMC) is the most famous business model framework. It is extensively used within researchers and practitioners as it provides a visual approach for the team to share , discuss , and analyse ideas about their business model (Sun et al., 2012, p. 6). Figure 3 shows the Business model canvas with a brief definition for its elements .

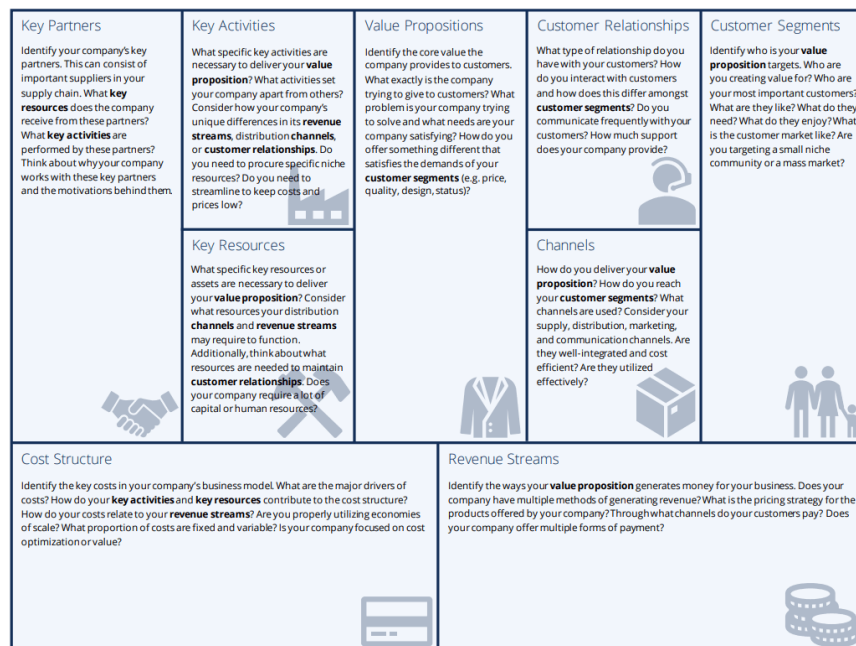


Figure 3. Business Model Canvas (source: corporate finance institute / Osterwalder, A., & Pigneur, Y. (2010))

The nine building blocks/elements of the Business Model Canvas are:

1. Customer segments

The customer segment element identifies the discrete categories of customers a company targets and seeks to deliver value for. To give better customer service, a company may divide its customers into different categories according to their needs and behaviours. Also, a company may embrace demographic, psychographic, geographic, and firmographic segmentation to differentiate its customers. A company does not need to serve all customer segments, but the company will choose the customers that it will be able to serve and achieve the highest profitability from and drop the other segments. Once the company decides which

customer segments to serve, the other blocks of the business model could be created according to the specified customer needs(Osterwalder et al., 2012, p. 20).

2. Value propositions

The value proposition element identifies the collection or aggregation of products and services that create value for a specific group of clients. The proposed value is the main factor that the customer uses to differentiate between companies' offers, as it either satisfies customers' demands or solves their problems. Some value offers are creative which disrupts the market and changes how customers use similar products. Others may offer a similar traditional product with added features and performance enhancements(Osterwalder et al., 2012, p. 22).

3. Channels

The Channels element specifies the channels of communication between the company and its various customer groups to offer value. A company needs communication, distribution, and sales channels to interact with its customers as these channels are customer touchpoints and perform a vital role in shaping the customer experience (Osterwalder et al., 2012, p. 26).

4. Customer relationships

The customer relationships element highlights the forms of relationships that a company has with targeted customer segments. A company should establish the type of connection that is appropriate for each consumer category. Personal assistance, self-service, automated services, and co-creation are all examples of customer relationships. Companies make much effort to build channels of communication with customers to gain new customers and maintain their existing customers, which helps to increase revenue. Customer relationships are critical to the business model as they significantly impact the overall customer experience(Osterwalder et al., 2012, p. 28).

5. Revenue streams

The revenue streams element indicates the income earned by a company from each group of customers after removing costs. A company may develop one or more sources of revenue from each client segment by knowing the customer's financial ability to buy the offered products. To support numerous income resources and generate multiple revenue streams. A company may use several pricing techniques, such as fixed or negotiated rates. Pricing may also be determined by market type and order size (Osterwalder et al., 2012, p. 30).

6. Key resources

The key resources element identifies the vital resources and assets dedicated to allowing the business model to work and makes it possible for a business to develop and offer value as well as access the markets and develop connections with customers, which leads to gaining revenue. Companies with different business models need various key resources, which include financial, tools, materials, intellectual, or employees (Osterwalder et al., 2012, p. 34).

7. Key activities

The key activities element describes the significant activities a company must do to have a working business model; it defines the most essential activities needed to create, offer and deliver value. This building block also includes a company's activities to access the markets, develop customer connections and generate income (Osterwalder et al., 2012, p. 36).

8. Key partnerships

The key partnerships element presents the company's strategic suppliers and business partners, which is considered a central component of many business models to work effectively.

Companies form alliances to improve their business models, mitigate dangers and get outside supply. A partnership can take several forms, such as a strategic alliance with non-competitors, coopetition between competitors, and a joint venture with another firm by pooling resources, allowing them to build a new business model (Osterwalder et al., 2012, p. 38).

9. Cost structure

The cost structure element identifies all the expenses needed by a company to run a business model. For any company to be able to produce and deliver value, maintain customer relationships, and generate revenue, it has to bear all the costs resulting from these activities. To better calculate these expenses, key resources, key activities, and key partnerships must be identified initially (Osterwalder et al., 2012, p. 40).

(Aagaard, 2018, p. 11) Indicated that there are some deficiencies in the BMC to be used in the creation of a digital business models, as it ignored Data and technology, which has a big influence on the work of the business model.

St. Gallen Business Model Navigator: Magic Triangle

The BMN (Business Model Navigator) answers the who, what, how, and why questions as shown in figure 4, to give a comprehensive view for the business model elements. It is called the magic triangle as any modification in any of its elements immediately impacts the other elements. This business model defines the targeted customers and what the company offers for them, which are considered external aspects. It also defines two internal aspects: how the offers are created and why these offers can generate revenue (Gassmann, O., Frankenberger, K., & Csik, 2014, pp. 6–7).

Who (the customer):

The who dimension identifies the customers by asking, ‘who is the targeted customer?’ companies need to answer this question as part of building their business models and defining their targeted customers carefully based on their capabilities.

What (the value proposition):

The what dimension defines a company's offers to meet the customers' demands. It provides a comprehensive picture of the company's suite of products and services that can be valuable to the targeted customers.

How (the value chain):

The How dimension defines ways and means of creating and delivering value to the customers by answering the question, 'how the company offers are produced?'. This dimension determines how the company's procedures and actions along with the resources available are managed and synchronized to develop and offer value to the customers.

Why (the profit mechanism):

The why dimension answers two questions: 'why is the business model financially feasible?' and 'why does it generate profit?'. It integrates financial elements such as cost structure and revenue-generating mechanisms to define how a company produce value for its shareholders and stakeholders. It also explains the commercial profitability of the business model.



Figure 4. Business model Navigator – the magic triangle (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 7)

The main function of this framework is to create a comprehensive awareness of the company's customers targeted, value offered, and profit gained. This could be a good starting point for future innovation.

By answering the four associated questions, the company defines how it creates and captures value. Furthermore, its business model becomes tangible as it explains internal and external factors that show how a company fits and interacts with the business environment. This, in turn, presents the opportunity for further discussions and innovation (Gassmann & Frankenberger, 2014, p. 2).

(Aagaard, 2018, p. 12) argues that the Gassmann et al. BMN is reliable and used widely. Moreover, it is characterised by ease of use, which makes the process of mapping the business model elements direct and fast. Despite its simplicity, it needs more detail about the business model elements. Moreover, The BMN has some issues with mapping a digital business model as it does not address technology or data explicitly.

DNA Business Model

The DNA Business Model is a restructuring of the BMC with its nine elements but in a different configuration. The business model is represented through Design, Needs, and Aspirations blocks as shown in Figure 5, which facilitate a business model's introduction, analysis, and innovation.

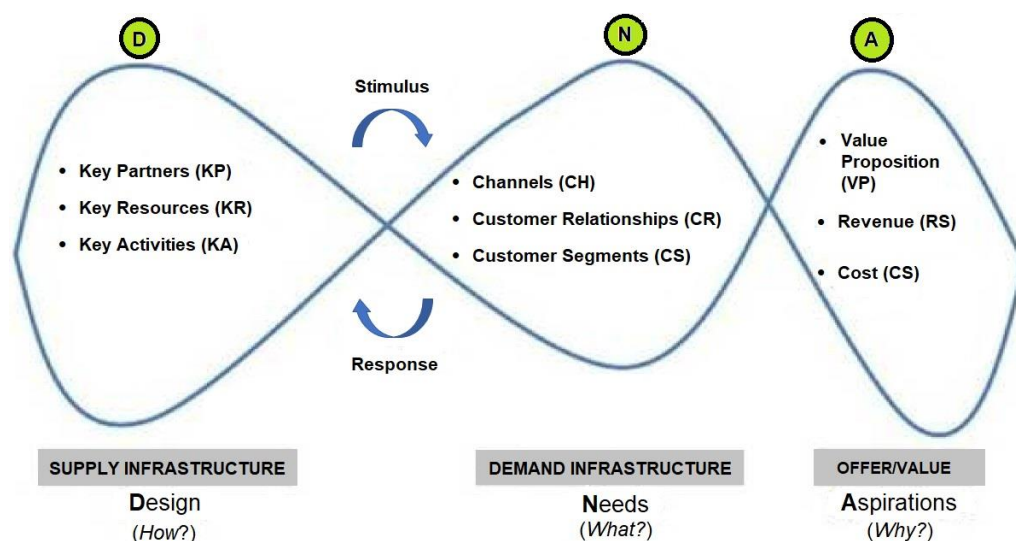


Figure 5. DNA Business Model (Sun et al., 2012, p. 4)

(Sun et al., 2012) developed the DNA Business Model mainly for IoT projects. The model helps businesses to seize commercial opportunities and to present case studies and models for IoT projects. As shown in Figure 5, the DNA Business Model includes the supply elements: key partners, key resources, and key activities. These three elements deal with the “how” question. The Design Block (D) defines how a company can supply a product or a service through its internal infrastructure.

The Need Block (N) defines another three elements of the business model: channels, customer relationships, and customer segments. These elements represent the external environment and the demand part of the business model. The Need Block deals with the “what” question, which identifies the external infrastructure for satisfying the customer’s demands.

Value Proposition, Revenue, and Cost are the last three elements of the DNA business model, which are included in the Aspiration block. This block answers the ‘Why’ question as it handles the offers and outcomes of the business model activities.

These three units influence and interrelate with each other as the Aspiration Block refers to the final results to be achieved while Design and Need Blocks refer to the “means” to achieve that.

According to (Sun et al., 2012), the BMC suffers from some shortages as it does not determine a clear cause-and-effect linkage between “means” and “end”. Moreover, (Sun et al., 2012, p. 6) argued that the BMC is too complex and difficult to be used in designing and analysing multi-level business model, making it unsuitable for use in some industries.

(Sun et al., 2012) claim that the DNA Business Model solved the BMC issues, but (Aagaard, 2018, p. 15) refuted that claim and stated that “the DNA Business Model lacks a reflection of these aspects and therefore does not solve any of the issues it addresses. Conversely, the model brings forward a conceptual ecosystem perspective by putting together the key partnerships, resources, and activity blocks in a single design block.”

3.3 Business Models Innovation

Starting with the definition of the Business model concept, (Afuah, 2014, p. 24) defined business model innovation as a plan or recipe for producing and seizing value through unconventional methods.

(Otola & Grabowska, 2020, p. 5) argued that business model innovation is an essential process for any company to respond to the constantly changing market requirements and the limited lifetime of the business model. With the help of business model innovation, a company can adapt to market conditions and improve its products and services or even create new products and technological solutions.

Regarding digital business model innovation (Aagaard, 2018, p. 2) claimed that digital innovation could be defined as the creation of new business models, processes, and market offers due to utilizing digital technologies. Accordingly, digital innovation operation includes the processes and best practices required to orchestrate the digital innovation process.

(Aagaard, 2018, p. 8) emphasised the role of digital entrepreneurs and start-ups in providing new innovations due to their intense utilisation of new technologies to change the traditional way of doing business which invents new business models, improves business operations and enhances customer engagement through digital channels.

The following part of the research investigates three different business model innovation frameworks to understand how new business models can be innovated through studying three different approaches.

3.3.1 Business Model Design Process

(Osterwalder et al., 2012, p. 244) argued that business model innovation is embraced to satisfy a customer need that needs to be met or to offer new technologies, products, or services to the market. Moreover, companies make practical

and effective use of business model innovation to improve, disrupt, and transform an existing market with a better business model or develop a brand-new market from scratch.

T

this section of the research explores the business design process offered by (Osterwalder et al., 2012, p. 244), which comprises five phases: mobilise, understand, design, implement, and manage.

Mobilise:

The main objective of this phase is to prepare for the business model design(innovation) process. The project objectives must be framed by establishing the rationale, project scope, and primary outcomes. Moreover, it entails building the project team by choosing the right people with new ideas, broad management and industry experience, and deep commitment to the business model innovation and allowing the team to access the information needed.

During this phase, initial testing of the business ideas generated by the team needs to be carried out. The team can also use BMC as a common language to communicate and share ideas, making the design activities much easier.

The biggest challenge in this phase is people's tendency to overvalue the of initial ideas, which may create to an inflexible and narrow study of other possibilities. To overcome this challenge, new ideas need to be tested continuously with people from varied backgrounds. (Osterwalder et al., 2012, pp. 251–252).

Understanding:

The main target of this phase is to gain a thorough understanding of the situation and the environment in which the business model will be developed. Moreover, the components required for the business model design process are researched and analysed. To achieve that, the project team needs to scan the business environment through market research, studying customers behaviour, consulting experts, and analysing competitors' business models. Also, Industry assumptions and established business model patterns must be questioned to achieve the desired results in the understanding phase.

During the scanning process, the environment trends, markets, and competitors are assessed, and varied input sources are sought, including customers looking for BMI opportunities. Finally, preliminary BM directions need to be tested early by encouraging feedback on the BMC (Osterwalder et al., 2012, p. 252).

Design:

In the design phase, team members must develop the skill of not thinking about the status quo of the current business model during ideation and adopt expansive thinking. Also, the team must take enough time to observe multiple ideas and different paths.

Moreover, the team must be patient while thinking about the different business model alternatives and keep away from choosing the model to implement too early. The team must experiment with various business model patterns, partnership models, and revenue sources and discover the value generated from numerous distribution channels.

Furthermore, a narrative must be developed and shared with the potential customers and market experts to test the potential business model and call for their feedback and comments. This should be done to determine the issues with the potential business model and to work on fixing those issues. (Osterwalder et al., 2012, p. 254)

Implement:

A business plan is needed to outline the implementation phase, while its activities are itemised in a project management plan, which involves outlining all associated projects, deliverables, formulating any necessary legal structures, and creating a proper budget and project schedule. Care must be taken to manage uncertainties by keeping an eye on how potential risk and reward expectations may develop against actual of the new business model (Osterwalder et al., 2012, p. 256).

Manage:

The company continuously assesses the newly implemented business model in the 'manage' phase. It scans the business environment to adjust the BM in reply to market reaction and external factors over the long term.

BMI is an ongoing process, even after implementing the new business model. A company must dedicate a team to manage the BM and its long-term evolution. Part of this requires leading regular workshops with different teams from different sections of the company to evaluate the BM, which will help to determine if the model needs modifications or sometimes radical changes. The culture of improving and rethinking the company's BM should prevail among all company employees, not only the top management. With the help of the BMC, the company can make the new business model clear and understandable to everybody, regardless of their backgrounds.

Due to the short lifespan of most of the business models because of the fast-changing business environment, the BM must be managed continuously. Herein lies the importance of the 'manage' phase, as the company must protect its investments in the new business model and constantly prolong the model's lifespan with management and development before it becomes obsolete.

(Osterwalder et al., 2012, p. 248).

3.3.2 Business Model Navigator

To develop the Business Model Navigator (BMN), (Gassmann et al.) analysed 250 business models applied in different industries in the previous 25 years. They identified 55 patterns of business models that were used to create new business models in the past. Their research found that 90% of all new business models recombine existing ideas, concepts, and technologies with slight variations. Based on this fact, they identified 55 repetitive patterns that can be used as a core for many new business models (Gassmann & Frankenberger, 2014, p. 3).

The BMN framework relies on 55 successful business model patterns, which can be considered blueprints for business model innovation efforts for any business.

The BMN consists of four phases: initiation, ideation, integration, and implementation.

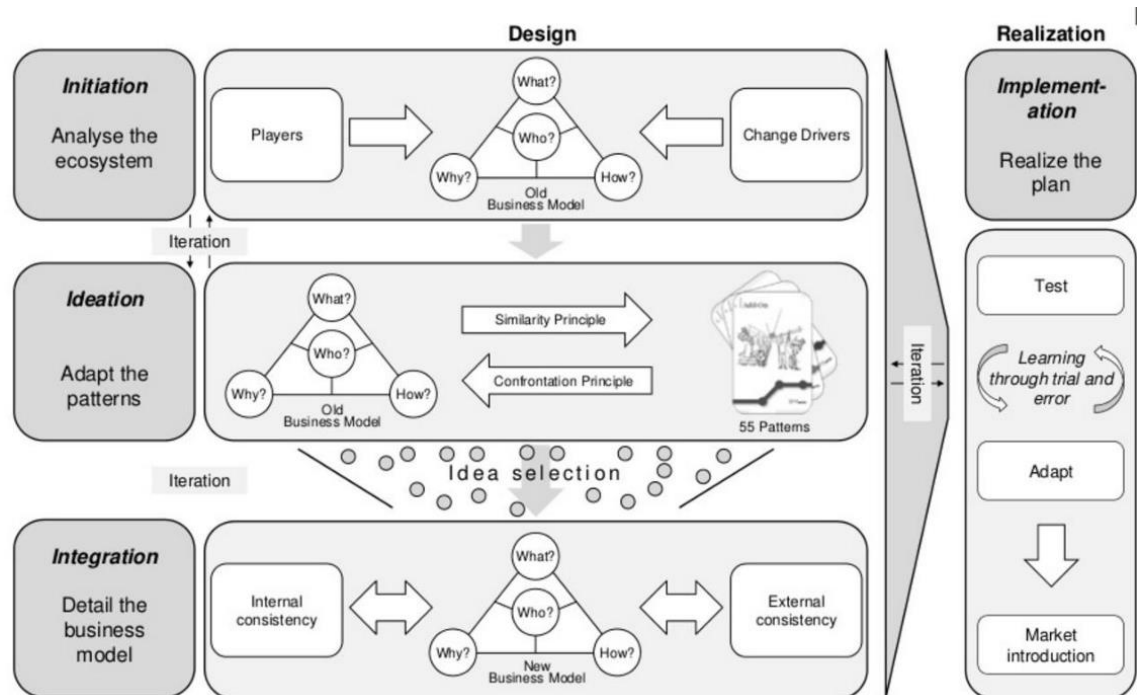


Figure 6. The Business Model Navigator (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 21)

1. **Initiation:** Analysing your ecosystem (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 25)

To start the BMI process, it is essential to define and analyse the current BM to sort out the weaknesses and consistencies in that business model. It is also vital to have an in-depth understanding of the roles of each stakeholder as well as key influencing aspects because the business model strongly relies on with the constantly changing business environment.

Determining the current BM and the underlying industry logic is not an easy task, and it needs time and the consultation of experts from different backgrounds to develop a comprehensive understanding of the status quo of the company's BM. The business model concept has to be taught to the people involved in the BMI process to create a shared understanding of the situation, as

the team members need to gain more knowledge of fields outside their area of specialisation.

In the initiation phase, (Gassmann, et al. 2014, p. 28) used the four core dimensions of who-what-how-why to describe the current BM. The four dimensions were defined earlier in the St. Gallen BMN: Magic Triangle section.

To get a comprehensive perception of the current BM, it is essential to understand the main actors that influence the business ecosystem. To analyse the business ecosystem, the customer's needs should be investigated thoroughly as they are considered one of the primary sources of BMI ideas. Moreover, it is crucial to identify and analyse the suppliers, distributors, solution providers, and others contributing to customer value. Furthermore, a company can learn from its competitor's business model.

In addition to analysing the significant actors that influence the BM, it is vital to determine and explore the emerging technologies and the megatrends as it is considered the most critical drivers of change in the business ecosystem. Those two factors must be analysed to identify how they transform and impact the business model.

The idea of emerging technologies as enablers triggered lots of successful business model innovation projects. It is important to emphasise that not all technology creates value automatically, but a proper business model is needed to create value.

To analyse the ecosystem, the current BM has to be described using the magic triangle. Then the company needs to consider the current business model's weaknesses and the probability of its failure. Also, the critical actor and change drivers need to be considered. Based on the previous activities, the current BM is criticised, and the possible future failures and their causes will be identified. The results of this analysis will be shared with the team to be used in the upcoming phases.

2. Ideation: Adapting patterns (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 41)

The main target of this phase is to adopt a new BM pattern in a structured manner without being bound by the dominant industry logic. New ideas can be obtained either from the employees or from external consultants.

The 55 successful BM patterns are a valuable source that can be applied in two ways. The first approach is adopting patterns from more related industries and then moving to more dissimilar industries. While the second approach is to find new BMs in unrelated industries and study their impact on the current BM.

Most of the time, the ideation process is carried out through workshops. Experienced moderators can lead those workshops to link the dominant industry logic and new business models. Hiring moderators from outside the industry would be beneficial to ensure impartiality during the ideation process.

At least two or three rounds need to be run during the workshop, as most participants will reach their creativity during the second round. And the third round should be for final and creative ideas for the new BM. If the process is not showing progress, it would be better to repeat the previous steps and drop the current idea or combine it with a previous one.

3. Integration: Shaping your business model (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 53)

The chosen business model pattern from the ideation phase must be designed in a consistent business model where all its dimensions meet the internal needs and are consistent with the business environment.

To achieve internal consistency, the new BM must be described in detail based on the four dimensions (who-what-how-why). Once internal compatibility is achieved, the company has obtained a competitive advantage that is difficult to get copied by competitors.

And to achieve the correlation between the new business model and the business environment, it is significant to know to what degree the new business model satisfies the needs of the stakeholders as well as its readiness to respond to prevailing trends and competition. During the development of the new business model, it is essential to examine the business environment continuously because it is continually evolving. The company may face internal or external inconsistencies with the new business model, which needs an iterative development approach to help get more innovative ideas and better results.

4. Implementation: Realising your plans (Gassmann, O., Frankenberger, K., & Csik, 2014, p. 57)

The implementation phase is considered the most challenging phase after completing the design phases because it involves many adjustments and changes in the company's internal and external business environment. These changes are due to the deployment of the new business model. All assumptions during the design phase need to be questioned and validated. Furthermore, more effort is required to face change resistance, which includes the resistance of the market and the stakeholders.

To succeed in deploying the new business model, it is recommended to use a gradual approach instead of deploying it immediately. Prototypes need to be developed and tested to help to minimise the risks potential, increase success opportunities, and give a better chance to learn more about the process and make the needed changes accordingly.

The newly designed BM needs to be consolidated, and it needs to be prototyped rapidly to allow fast and low-cost testing, which helps in discovering the strengths and weaknesses quickly. A prototype can take different forms: detailed presentations, business plans, and pilot projects.

Prototyping needs the involvement of teams from different backgrounds with broad experience and knowledge. The assumptions need to be tested rapidly to help the team to generate new knowledge to gain a shared understanding of the

assumptions and validate them before the business model is introduced to the market.

3.3.3 Schallmo and Daniel Roadmap

The digital transformation of the business model roadmap developed by (Schallmo, A., & Daniel, 2018) gave great consideration and attention to the emerging technologies and their impact on the business model as well as how the business model can be innovated, especially due to the deployment of digital technologies. Figure 7 shows the five main stages and its entailed activities in Schallmo and Daniel roadmap. the following sections will discuss each phases and the related activities.

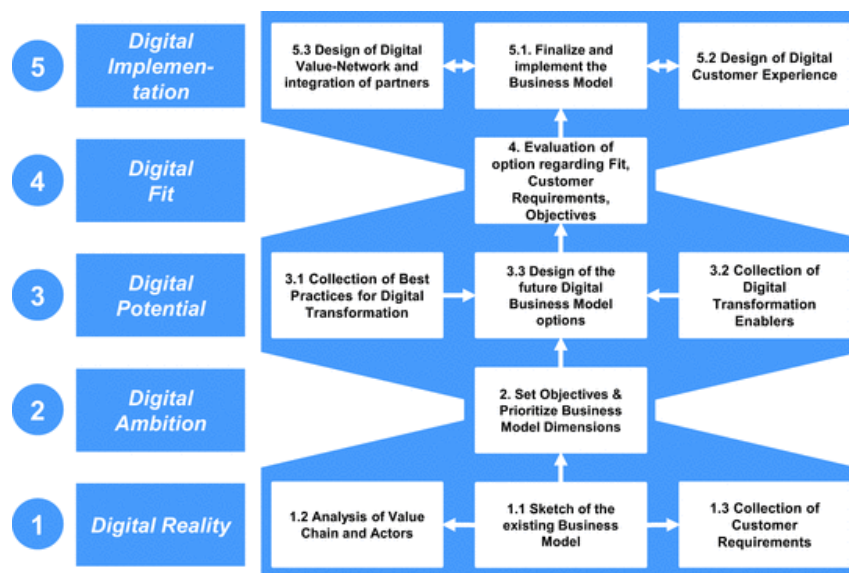


Figure 7. Roadmap to the digital transformation of business models (Schallmo, A., & Daniel, 2018, p. 42)

1. **Digital Reality:** (Schallmo, A., & Daniel, 2018, p. 45)

In the digital reality phase, the present working business model is outlined. The value creation network and the main players in the industry are defined and evaluated. Moreover, customer requirements and expectations are identified and analysed.

To start the digital transformation of the current business model, a deep understanding of the dimensions and elements of the existing business model is essential. The five dimensions: Customer, Benefit, Value-Creation, Partner, and Financial with their sub-elements are analysed and identified to figure out the current business model. Building a prototype helps significantly in the identification of the particulars of the current business model with its five dimensions and sub-elements.

To understand the status quo of the current business model, a company needs to understand the current situation in the industry and the business environment, to determine the potential degree of digitalisation that can be achieved.

To analyse the value network in a specific industry, the value creation stages have to be listed, and the main influencing actors for each stage must be identified. Then the extent of digitalisation in the value chain is determined.

2. **Digital Ambition:** Setting Objectives (Schallmo, A., & Daniel, 2018, p. 51)

In this phase, the main goal is to promote a digital aspiration for the business model by setting goals with respect to digital transformation of the business model elements. The objectives are defined in relation to four factors which are time, finances, space, and quality.

3. **Digital Potential:** Establishing Options (Schallmo, A., & Daniel, 2018, p. 53)

In this phase, digital technologies that enable digital transformation and the best practices followed are identified to determine the digital possible options of the business model transformation. To achieve that, ideas for the digital transformation of a business model are determined and described either from inside or outside the industry. Further, the digital radar can be used to identify the digital enablers that are available for digital transformation and their application as shown in figure 8. Accordingly, the available options for designing the future digital business model are studied and analysed.

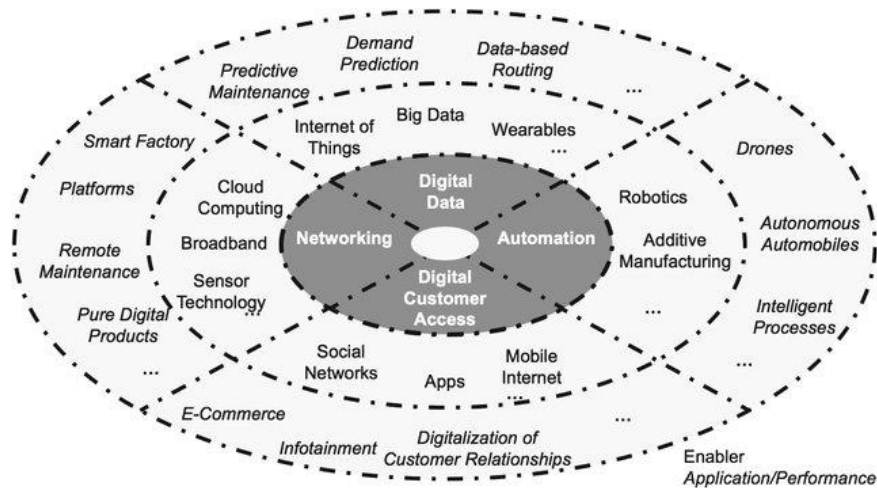


Figure 8. Digital Radar

In this stage it is recommended to identify which business model elements can be digitalised and how the digital technologies can improve them, then all the options are listed without assessment.

4. **Digital Fit:** Suitability Evaluation (Schallmo, A., & Daniel, 2018, p. 56)

This phase aims to assess the appropriateness of the new digital business model to be deployed, and different feasible options are defined and defined and embedded into the existing model. Those options need to be evaluated according to the suitability within the existing business model, the satisfaction of client demands, and the achievement of digital transformation objectives.

As a result of the evaluation of digital options suitability, different paths are defined for the digital transformation of the current business model.

5. **Digital Implementation:** Enabling the Realization (Schallmo, A., & Daniel, 2018, p. 61)

The objectives of this phase are to finalise and implement the digital business model by integrating the most promising options from the previous evaluation into the new business model.

This phase defines and prioritises the projects and the changes needed to re-innovate the existing business model. It also defines the enablers and their applications that will be used. Moreover, the resources and skills needed for the digital implementation are provided. Also, in this phase, a new digital value network and customer experience are created to satisfy the customers' needs.

Finally, it's important to adopt an iterative approach during implementation of the new business model to reach the ideal model.

3.4 Theoretical framework

This paper selects and reviews the most recent publications from books and scientific articles that explore and analyse digital transformation, business models, and business model innovation to discover the latest findings and trends in these knowledge areas.

The literature review helps the researcher to build on the knowledge and information created by others and to make enlightened decisions during the different phases of the research.

By reviewing the literature, the researcher will be able to define the significant findings and the related topics from previous research, which will serve as a base for further research on the current issue under study (Sekaran & Bougie, 2013, p. 58). Table 1 presents the most important literature reviewed.

Author	Publisher	Year	Title
Alexander Osterwalder, Yves Pigneur	John Wiley & Sons	2010	<i>Business model generation: a handbook for visionaries, game changers, and challengers</i>
Gassmann, O., Frankenberger, K., & Csik, M.	Pearson UK	2014	<i>The business model navigator: 55 models that will revolutionise your business.</i>
Schallmo, A., & Daniel, R.	Springer	2018	<i>Digital Transformation Now! Guiding the Successful Digitalisation of Your Business Model</i>
Aagaard, A., Aagaard, A., & Harrison.	Springer International Publishing.	2019	<i>Digital business models.</i>
Zott, C. & Amit, R.	Oxford University Press	2015	Business Model Innovation: Toward a Process Perspective
Zimmermann, A., Schmidt, R., & Jain, L.C.	Springer	2021	Architecting the digital transformation

Table 1. Theoretical framework

Most sources used are recently published books, articles, scientific journals, and research papers relating to digital transformation, business models, and business model innovation to understand the latest trends and changes in the Digital Transformation of Business model innovation fields.

As a result of reviewing the literature, this research developed a clear understanding of digital transformation, business models, and business model innovation concepts. It removed many of the ambiguities that were associated with these concepts.

Moreover, three different business model frameworks were studied to understand the business model's elements and components and how they can be used to create, deliver, and capture value.

To answer the main question of the research, it was essential to study the existing approaches of digital transformation and business model innovation for the current business models. For this reason, this research presents and examines three different business model innovation frameworks that can be used in the digital transformation of the current business model.

This research presents a comprehensive approach for managers and digital transformation leaders to guide them through their digital transformation journey. It gave a broad vision of how the digital transformation of the business model can be conducted.

4 METHODOLOGY

4.1 Research approach and data collecting method

This qualitative study investigates and answers questions about how to make the digital transformation to the business model. Since digital transformation is a poorly studied phenomenon, an explorative study is required to understand the phenomenon better. Accordingly, qualitative research methods are used to answer research questions and explore the phenomenon more thoroughly.

Exploratory research involves using various research methods such as interviews, observation, and reviewing documents. Interviewing is frequently used in master's level research into business issues. It can provide information related to experiences and best practices through open and semi-structured questions. (Fisher, 2010, p. 182)

The data collection method is determined based on the researcher's judgment regarding the data type needed for the problem under study (Ghauri et al., 2020, p. 95). Business issues are considered to be a social phenomenon. For this reason, to study these issues and make a proper analysis, information should be collected from employees, managers, customers, suppliers, etc. For business issues, interviews, observation, and questionnaires are beneficial methods for data collection, as they allow the researcher to get multiple perspectives of people from diverse backgrounds (Sekaran & Bougie, 2013, p. 111)

This paper uses semi-structured interviews to collect data to answer the research questions. The selected interviewees worked in various positions and had different job roles, but all of their roles were related to managing and leading digital transformation and business model innovation projects. The participants were contacted by sending a private invitation message through LinkedIn. The interviewees are from the United States, Germany, Switzerland, Saudi Arabia, and Lebanon. This diversity gave an excellent chance to understand how people deploy digital transformation in different markets.

Semi-structured interviews were conducted with digital transformation experts, consultants, and project leaders to investigate the current methods and activities in digital transformation projects and to obtain real-life approaches to the digital transformation of business models.

The interviews were conducted online via Zoom, and each interviewee was asked for permission to record the interview. The interviews were usually started by asking the primary question, “How to make Digital Transformation for a Business Model?” This broad question allows the interviewee to share his experiences and knowledge from his point of view without any influence from the interviewer.

By answering the main question, a perception is formed by the interviewer about the experience of the interviewee and the depth of his knowledge, and his ability to lead and manage digital transformation projects. Moreover, only the secondary questions aligned with the answer to the main question have been asked to avoid distraction and ensure the smoothness of ideas.

During the interview, comparisons were made between the ideas presented by the interviewee and the data collected from the literature review to confirm the collected data validity and to determine to what extent the guest agreed or disagreed with the information collected. As a result of the interviews and the literature review, the proposed digital transformation of the business models roadmap, including phases and activities, is developed.

4.2 Research data and analysis

Data thematic analysis is used in this research as it is a flexible approach to qualitative analysis that enables researchers to generate new insights and concepts derived from data. One of the many benefits of thematic analysis is that a novice researcher learning to analyse qualitative data will find thematic analysis an accessible approach.

After each interview, a transcript of the interview recording was made using the Microsoft 365 transcription tool. Then, by reading and analysing each transcript and making data reduction to highlight, organise, and categorise the ideas in each

transcript and make it more structured by comparing the transcripts so that recurring themes could be recognised.

After organising the collected data from the interviews into categories and sub-categories, patterns and relationships between the data could be identified. As part of the iterative process of qualitative data analysis, new categories may need to be created. Other defined categories may need to be changed or broken into subcategories(Sekaran & Bougie, 2013, p. 337).

The recognised themes are addressed and organised. All contributions related to a particular theme are grouped under one title and then analysed and consolidated to reach a precise result. The collected data from the interviews is interpreted in light of the concepts and knowledge developed from the literature review(Fisher, 2010, p. 107).

To develop the digital transformation of the business model roadmap, the defined topics resulting from identifying and analysing the recurring themes are compared with the phases and activities defined in the three business model innovation frameworks that were investigated during the literature review to validate the data collected.

5 RESEARCH RESULTS

The interviews were held with digital transformation and business model innovation experts, consultants, and managers. The main objective of the interviews was to discover the practical approaches to the digital transformation of business models and identify the phases and activities followed by the experts. The participants received the questions by email before the interview to clearly understand the research dimensions and purpose.

The selected interviewees have different positions and job roles. Still, all are related to digital transformation and business model innovation which gave an excellent opportunity to discuss the best practices and the approaches used in the digital transformation of business models from different perspectives and according to other experiences. These interviews, therefore, offer an understanding of the process of conducting the digital transformation of business models.

The main findings from the interviews develop a better understanding of the concepts of digital transformation, business models, and business model innovation.

The interviews focused mainly on the questions related to the practical aspects of the digital transformation of business models. The main question of the research has been used as the opening question in the interview, and each interviewee answers based on the experiences and the practices approached in the projects they have led or have been part of. This first question has been followed by broad, open-ended questions to allow the interviewee to keep telling his story and to explain his/her point of view and how decisions were made during the digital transformation journey.

Many shared ideas and themes were consistent with what was presented in the literature review. Most of the phases and activities mentioned in the business innovation frameworks reviewed have almost unanimity and agreement among the participants. However, there are some minor differences in the sequence and methods of implementation.

The interviewees introduced different numbers of phases with different titles that represent the digital transformation roadmap phases they experienced in their projects. Comparing these phases concluded that the phases are consistent in content and activities, despite the difference in names. Through the discussion with the participants, it was agreed on five stages to digitally transform the business model: initiation, planning, design, implementation, and monitoring and controlling.

Moreover, the interviewees argued that it is essential to understand the business model's current status and the emerging technologies and their applications to start the digital transformation of the business model. Moreover, the human factor is a crucial element for the success of the digital transformation journey. For that reason, people engagement, upskilling, and team-building activities are critical parts of the process.

Objectives and business strategies need to be set based on the current status of the business model, the aspired results, and the available competencies and capabilities. Innovative ideas creation, testing, and implementation require special attention and wide participation due to their iterative nature and broad impact. Then, monitoring and measuring the whole process and continuous evaluation of the business model are essential during the whole project. Furthermore, the reasons behind the failure of many digital transformation projects are defined. Finally, the digital transformation of a business model roadmap is developed based on the interviews and theoretical frameworks.

This section determines and discusses the themes and ideas that emerged from the data analysis resulting from the interviews.

5.1 Digital Transformation is a journey

Digital transformation is an ongoing process that needs a digital strategy, and it may take years to digitally transform the business model, depending on the company's size.

“Digital transformation is not a fixed target as the business environment keeps changing and evolving. So digital transformation is not an endpoint. It is a practice that keeps evolving because technological advances keep happening.”

The disruptive nature of emerging digital technologies is one of the main drivers for companies to pursue digital transformation by transforming and innovating their business models. If companies do not acquire digital transformation, they will be out of business in the next few years and lose their customers to competitors.

5.2 Current Business model analysis (Status quo)

The interviewees agreed that to start the digital transformation of the business model, it is essential to understand the status quo of your current business model.

“Before making any change to the business model, it is important to know “who we are today as a business.”

This means that every aspect of the business model must be mapped out in front of the team to understand the current state, define the future state, and determine the activities required to move from the current to the future state.

5.3 The digital technologies

There is broad agreement among the participants that it is necessary before starting the digital transformation journey and thinking about changing the current business model to understand emerging technologies and their associated applications.

“It is important to ask “do we understand what digital technology is all about and how to apply it?”. “Do we understand the opportunities that digital technology can create?”.”

They admitted that most managers and those interested in digital transformation do not understand digital technology and how it impacts their business.

5.4 People engagement

One of the lessons learned from the interviews is that if you want to succeed in digital transformation, you need all the employees and all the stakeholders to get involved in this process. Digital transformation is not only about technology. It is about people too. One of the main aspects is to have the business culture adapted and committed to the digital transformation process.

“Technology is not going to use itself; It is the people who will use it to create and deliver value for the customers.”

5.5 Team building

According to the interviewees, they took for granted the fact that if you do not have the right team of people who can lead the business transformation process, you will fail.

“You need to have business visionaries, people who create a business outcome, create experiences, and drive the business towards that.”

To change the traditional way of thinking and to overcome the bias of the dominant logic in the firm, you need diversity in your team. In addition, the team needs to be more agile and adaptive. The team has to go through unlearning and learning process and practice rapid prototyping to test the assumptions and decisions made.

5.6 Setting the objectives and business strategy

One of the main activities of the digital transformation process is identifying the digital transformation objectives and the business strategy that guides the whole process. This can be done only after evaluating the current status of the business model and determining the gap in competencies and capabilities needed to reach the desired future digital business model.

“It is putting first the vision. What do I want to be? How can I go there? What is the most efficient way? Moreover, what is the gap? Moreover, based on this gap, I can decide what are set of elements needed to help me go from point A to point B.”

The transformation process may include long-term objectives depending on the company size. It was suggested to add short-term objectives, as it would be more practical to think about the quick wins and what can be achieved in the short term. It would be helpful to show the initial benefits of the digital transformation of the business model.

“Companies operate by yearly targets and yearly performance, so it would be better to show what can be achieved in the short term with the current resources and budget.”

5.7 Ideas creation and implementation

To start the creation of new ideas, the whole conversation should start around the business model: What are the customer's needs? What kind of experiences do we want to deliver? How are you going to create experiences for our customers? What kind of technology supports new ideas to come true? With the support of technical people and systems engineers, business needs can be mapped with technology.

“The team shall not reuse the old way of thinking; they have to go through the design thinking process experience. The outcome may not be predictable, but this is part of the process; we do not know what the outcome will be.”

Then, the team creates a prototype, tests the ideas, brings it to market, and gets feedback from the customers and employees. Based on the feedback, the team reiterates and observes the results of the changes they make.

5.8 Monitoring and controlling

The business model transformation is an ongoing process due to the constantly changing business environment and the rapid development of emerging technologies. This puts the business model under continuous threat, which needs continuous monitoring for the changes to respond accordingly.

Monitoring and controlling are essential activities during the whole process of the digital transformation of the business model. Starting with evaluating the current business model, collecting customer needs, determining the technology, etc.

Even after implementing the new business model, permanent monitoring of the business environment is crucial. For this reason, it is recommended to hire a team to manage the business model permanently.

5.9 Why does digital transformation fail?

In practice, many challenges lead to the failure of digital transformation. The deployment of the latest technologies alone is insufficient for a successful digital transformation.

The interviewees agreed that the main reason for the failure of the digital transformation process is unrealistic planning with high expectations and without validating the suggested solutions.

There may be a lack of resources, competencies, and capabilities to change the current business model to a new digital one. This gap cannot be overcome within the timeframe or the budget allocated.

In addition, change resistance among the employees is due to the fear of being replaced because if the digital transformation succeeds, they may lose their jobs and be out of business. To overcome this issue, a proper change management plan is needed. Moreover, it is essential to relate the project objectives with the gains and goals of the employees. Also, upskilling the employees is another issue, as people need to understand that the market has changed, and they need to gain more digital skills.

Furthermore, the existing business model may sometimes contradict the new business model due to the limited understanding of the long-term nature of the digital transformation process and being in a hurry to get positive results from the new business model.

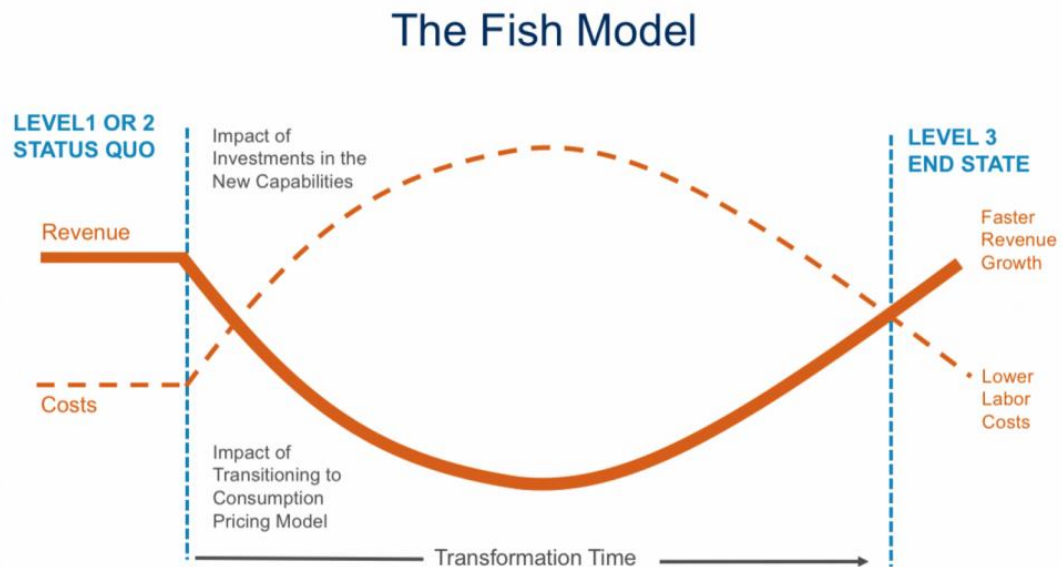


Figure 9. The Fish Model (Source: Technology-as-a-Service Playbook 2016 TSIA)

The fish model in Figure 9 shows that as the company goes through the digital transformation, the revenue decreases, and the costs go up to a certain level because the company invests in the new capability. Hence, the cost goes up, and then the revenue goes down because the company is going through a transformation.

After the transformation time has passed, the revenue increases significantly, and the costs start to go down. This is the simplest picture of transformation.

Although the managers may be aware of this nature and understand that the economy goes in cycles, they do not like that reality and keep using the old ways to achieve the quarter targets.

Technology should not be the goal; it is not a value on its own; it is what you do with it and how you use it that is important, but it should be an enabler. Companies fail because they do not capture the full opportunity and put a lot of investment into technology, but they do not know how to create value from it.

A company should always start with the business model canvas and then review what resources and activities are used to run the business. Create the outcome, create the experience, and create value. Understand what your customer needs. Start with the customer, whomever the customer is, and then work that back through the rest of the business model to understand what you need.

A company should spend enough time testing and validating the new business model before the final deployment. Moreover, customer behaviour and functional and emotional needs must be studied carefully to be more able to create and deliver value for the customer and be able to capture value in return.

5.10 Digital transformation of the business model roadmap

As a result of the analysis of the theme interviews with digital transformation and business model innovation experts and comparing these results with the business model innovation frameworks reviewed, the roadmap for the digital transformation of the business model was developed.

Phases	Activities
Initiation	Build the team from different backgrounds Analyse the current business model (status quo) Analyse value chain and influencing actors
Planning	Understand the business environment and context Collect customer requirements Understand the technology Scan the trends, markets, and competitors Identify the gaps Set the objectives Build a change management plan

Design	<p>Generate innovative ideas/adopt expansive thinking</p> <p>Prototype</p> <p>Test</p> <p>Feedback/evaluation/testing – meet customer requirements and business objectives.</p>
Implementation	<p>Develop a business plan</p> <p>Develop a project plan</p> <p>Implement the final BM designed</p> <p>Manage internal and external changes needed due to the deployment of the new model</p> <p>Face change resistance</p> <p>Implement gradually – small scale – fail fast – fail cheap</p>
Monitoring & controlling	<p>Build a team to manage the business model</p> <p>Continuous scan/assessment/evaluation of the business model and the business environment</p> <p>Modify/fix whenever needed</p>

Table 2. Digital transformation phases and activities

6 DISCUSSION

According to the analysis of the qualitative data, the definitions and concepts of 'digital transformation', 'business model', and 'business model innovation' raised from the literature review have been emphasised by the interviewee's contributions. Despite what has been raised in the literature about the existence of ambiguity and inconsistency in understanding the concepts of business models and digital transformation, the research results defined the business model as a framework that shows how a company creates, delivers, and captures value which agrees with the definitions presented earlier. Digital transformation is defined as a business process that uses technology as an enabler to modify or create new business models, enhance customer experience, and improve the organisational culture and business processes.

The results concluded, and themes appeared from the interviews to answer the research question, "How to make a digital transformation for a business model?". The analysis of the interviewee's contributions defined the activities needed to lead the digital transformation of the business model process. The digital transformation roadmap phases and their underlying activities are determined as the following points.

- **Initiation phase**

In the initiation phase, a company should be concerned with building the right team and analysing the current business model status to know where the business stands today.

Building the right team is an essential activity for business transformation success. To succeed in the digital transformation journey, you need a team that can cope with dissent, inconsistency, and ambiguity.

The team needs cooperation between all departments, as the chief technology officer (CTO) leads the technical aspects, and the chief marketing officer (CMO) leads the offerings that have value for customers and business partners. The chief operations officer (COO) leads the compliance of the CTO's work with the requirements of the operation. The chief financial officer (CFO) will follow up with

the CTO on the impact of the financial aspects. The CTO takes the lead, and others ensure their objectives are met.

The team must include employees from different job levels and different functional departments; it is not only for the C-level officers.

(Osterwalder et al., 2012) considered team building to be one of the activities that must be done during the 'mobilise' phase in the business model design framework. They clarified that you could build the project team by choosing the right people with new ideas, broad management and industry experience, and deep commitment to the business model innovation, as well as by allowing the team access to the needed information.

On the contrary, the other two frameworks reviewed did not pay any attention to the team-building process. They did not include it in any activities or phases despite its importance.

The interviewees agreed that to start the digital transformation of the business model, it is essential to understand the status quo of your current business model. Also, every business model aspect must be mapped out in front of the team. They need to understand the current state, define the future, and determine the activities required to move from the present to the future state.

This recommendation agrees with what has been presented in the three business model innovation frameworks reviewed in this paper. In the "understand" phase, (Osterwalder et al., 2012) emphasised the importance of understanding the context and environment in which the business model will be developed. This includes the current status of all the internal and external elements of the business model.

Moreover, the 'initiation' phase in the BMN explains the importance of defining and analysing the current status of the business model, the roles played by diverse influencing factors, and the constantly changing business ecosystem.

Furthermore, (Schallmo, A., & Daniel, 2018), in the 'Digital reality' phase of their roadmap, put the evaluation of the current business model and having a deep

understanding of its elements as a principal and significant activity to start the digital transformation of the business model.

The interviewees defined the business model as a tool that is used to describe the business that a company is doing today. It shows how a company can create, deliver, and capture value. This definition reinforces what was previously presented in the definitions of the business model. The business model simplifies reality and reduces complexity, as the business world is too complex. The current status of the business model needs to be understood because most of the business assumptions are tacit, and most people do not put them on the board.

In the 'mobilise' phase of the business model design process, (Osterwalder et al., 2012) encouraged using BMC as a common language to improve communication between the team and enhance the design and new ideas creation process.

It is essential to visualise the business model simply for the people involved in creating the new business model. Most interviewees recommended the business model canvas as a tool to present the current business model.

Moreover, it is recommended to teach the people the business model with its nine building blocks because many people and many companies need to understand the business model concept. It is not just the CEO that needs to understand the business model, but all the directors and employees need to understand it too.

As a result of comprehending the current business model and having the canvas clear for everyone, the team will understand the impact of technology on each part of the business model and how it fits into the new business model.

Also, assessing the company's current capabilities is crucial to know if you can successfully apply the digital transformation internally. You need to know what other skills and tools are required to help achieve the desired objectives.

- **Planning phase**

There is broad agreement among the participants that before thinking about changing the current business model, it is essential to ask, 'do we understand

what digital technology is all about and how to apply it?'. The participants admitted that most managers and those interested in digital transformation do not understand digital technology and how it impacts their business.

They emphasised that the first step in the digital transformation journey is understanding, 'do we understand the opportunities that digital technology can create?'.

A company must explore and analyse emerging technologies and determine where they can help, where they can be utilised to create, deliver and capture value, and how they impact each block of the business model.

Technology can be considered a resource that a company needs to understand how it (technology) impacts the company's value proposition and the customer experiences by changing the way of reaching the customers through building new relationships and using new channels.

The team needs to verify the technology before applying it. Because some technologies that are valid today cannot be valid every day, so, it would be best if a company always stayed in tune with new developments; for example, data centres a couple of years back were the only choice and when the cloud came, and amazon and others joined in, and data centres became the last option. So, companies need to verify and validate their need for a specific technology for their business.

The biggest challenge today is orchestrating technology and business needs because a company is looking at a number of technologies such as AI, IoT, Cloud, Cybersecurity, Blockchain, VR, AR, and CRYPTO. Companies need to create the proper infrastructure, but this is still a current problem globally. Companies are trying to figure out how to synchronise and integrate different technologies.

A company needs to identify the areas where it can utilise technology. After identification, it can all be integrated into a system. Just like having a floor plan for a building, having a plan for utilising technology can show:

- 1) How technology can help in each of the areas; and
- 2) How those multiple technology stacks can help multiple areas.

A company needs an experienced team with a vision supported by higher management to choose the right technology to apply. The team needs to be quick because they will be out of the race if they are not fast. That is what happened in the case of Cisco and the cloud, and they did not realise that Amazon had seized the opportunity.

Choosing the technology is also based on target customers and core competencies. Technology is like a solution to a problem, but if the team members want to think as innovators, they do not start with a solution. Instead, they start with the issues they want to solve. What problems do the customers have? How does it make them feel once you understand your customer's functional and emotional needs? After answering these questions, a company could determine which technology to implement. This does not dismiss the importance of technology, but in the end, companies need to prioritise customer needs and how to meet them.

The three frameworks previously discussed for business model innovation handled the technology issue differently.

The business model design framework by (Osterwalder et al., 2012) considered technology to be one of many factors influencing the business model. Therefore, this framework can be viewed as a generic framework for business model innovation as it includes a comprehensive approach to innovating a new business model regardless of the motives behind this change.

In regards to the business model navigator framework, technology has received more attention, especially in the 'initiation' phase. As (Gassmann, O., Frankenberger, K., & Csik, 2014) described emerging technologies as enablers that play a vital role in the success of the business model. They have seen technology as the most critical driver of change in the business ecosystem. For this reason, they emphasised the importance of identifying and analysing emerging technologies and understanding how they transform and impact the business model.

Finally, the digital transformation roadmap developed by (Schallmo, A., & Daniel, 2018) considered technology to be the main and essential factor at every phase in the business model innovation process.

In the digital reality phase, the degree of digitalisation of the value chain is identified as part of the evaluation of the current status of the business model. Also, in the 'Digital ambition' phase, the objectives were set based on the improvements that need to be achieved in terms of time, finances, space, and quality through the deployment of emerging technologies.

Moreover, in the 'digital potential' phase, which is concerned with finding digital solutions and options to build the new digital business model (Schallmo, A., & Daniel, 2018) pursue the best practices and the technologies available for the digital transformation of the business model and examined their impact on the business model elements.

After identifying the best options, digital solutions, and technology applications that can transform the business model, all the possible alternatives must be evaluated before the implementation. As a result of the evaluation of digital suitability, the most promising combination of options is integrated into the business model to finalise the transformation process.

Digital transformation is not only about technology; it is initiated by technology, technology is an impulse, and then you decide how the technology will create opportunities and change the business environment.

Companies need to define their goals from the digital transformation by setting objectives and putting business strategies to know the expected outcome and what they want to achieve from the transformation process. Companies set clear objectives to enhance the customer experience and improve the value creation network.

The strategy and goals need to be defined from day one immediately after the capacity mapping and analysis of the current business model. Some goals may

need to be updated because of key findings that might alter the way of thinking of the team while building the new business model.

The plan will be made and delivered based on the goals set. Many companies have an ambitious long-term plan for five years; by adopting digital transformation, the strategic view at the end of those five years is, for example, to renovate the value chain, remodel the customer touchpoints, improve the operation, upskill the workforce, etc.

Apart from this long-term plan, it would be more practical to think about the quick wins and what can be achieved in the short term. It would be helpful to show the initial benefits of the digital transformation of the business model. Companies operate by yearly targets and performance, so it would be better to show what can be achieved in the short term with the current resources and budget.

The team can conduct small intervention testing and proof of concept piloting of simple activities that they can do over the next three to six months. As a result of this short-term action, many things can be changed in the company; for example, a small department can be changed, enhancing the operation, automating a process or adding a social media account; this will lead to some developments in the company's overall performance.

Yop management would always like to see those short-term tactical improvement steps on the ground. They also enjoy having long-term plans, but they try to find what they can achieve in the next three to six months.

It is all about implementing a vision, a plan about 'what I want to be', along with the tools that can help to achieve that. Tools could be technology, resources, money, or whatever resources and competencies will help to achieve those objectives.

Then it is essential to ask: what is the gap between where I am today and where I want to be in one year? For example, the gap could be training, buying a new system or service, or bringing a consultant from outside to lead the transformation process.

Determining the vision requires asking a number of questions. What do I want to be? How can I go there? What is the most efficient way? What is the gap? Moreover, based on this gap, a company can decide what elements are needed to help to go from point A to point B.

Due to the importance of setting objectives activity, (Osterwalder et al., 2012) chose to set the project objectives as the first activity to be done in the first phase, 'mobilise' of their business model innovation framework. Also, (Schallmo, A., & Daniel, 2018), after defining the current status of the business model in the digital reality phase, started the digital ambition phase by determining the digital transformation objectives based on the digital reality of the current business model and what they want to achieve.

On the contrary, the business model navigator framework moved from the initiation phase to the ideation phase without setting any objectives or identifying initial goals for the transformation process, which can be seen as a shortage in this model.

- **Design phase**

To start designing a new business model, the whole conversation should begin around the business model, and the following questions should be answered. What are the customers' needs? What kind of experiences do we want to deliver? How are you going to create experiences for our customers? What kind of technology supports new ideas to come true? With the support of tech people and systems engineers, a company can map the business needs with the technology that helps achieve the desired outcomes.

One of the design thinking methodologies used by one of the interviewees in digital transformation is called POST: it is about people, objectives, strategy, and technology. In this design thinking methodology, technology comes at the end. The challenge with technology companies is that they think more about technology than anything else; the approach is to forget about technology for some time and start thinking about new experiences for the clients and getting into creating value.

The team shall refrain from using the old way of thinking; they must go through the design thinking process. Although the outcome may not be predictable, the outcome is unknown in this part of the process. This methodology expands the coming-to-the-solution time frame but accelerates the result because it allows you to fail fast and cheaply.

It may be difficult for the team to follow this approach. For humans, the expected scenario is to start the process and immediately have a solution, but this is different in the design thinking approach. The team has to go with the flow, believe in the process, allow themselves to get confused, and allow themselves to get lost. It is about imagining the impossible and then adjusting it to make it possible.

The team has to go through an exploration process and ask questions that lead to facts, not opinions; they need to define the most significant problems and the driving forces, then look for insights, solutions, and the job that needs to be done.

The team then creates a prototype, tests the ideas, brings it to market, and gets feedback from the customers and the employees. Based on the feedback, the team reiterates and observes the results of the changes they make. The next step is to either go to implementation, make changes to the idea, or even cancel the whole idea and go with something else.

The design thinking process is fast and depends on how many resources are dedicated to transforming a business model – how big your business is and where the transformation needs to take place. It is about introducing new resources and determining the impact of these resources. Then, in applying these resources to the business model, the bigger the business, the slower it is because more people need to embrace the change.

The team should define the areas that need investment to achieve the new business goals. Finally, in creating a customer experience, the team should create a space for the customer to buy the products or services and feel the value of using the product, which leads to a long-term relationship. The customer experience is

formed in the business model through the customer segments, customer channels, and customer relationships.

The use of technology in digital transformation must be met with a business model to help create, deliver, and capture value. To deliver value to the customer, a company must ensure that the new business idea is viable, feasible, and desirable. So those are the three aspects that need to be balanced. Desirability plays a considerable role; if the people you are targeting want to use something other than your product or service, it does not matter if you have the resources to deploy new technology, and it doesn't matter if, on paper, it looks like you're going to make money.

(Osterwalder et al., 2012) included the generation, testing, and selection of the most viable business model ideas in their framework under the 'design' phase. And in the business model navigator framework, 'Ideas creation' is a crucial phase. In fact (Gassmann, O., Frankenberger, K., & Csik, 2014) dedicated a whole phase to this process due to its importance and its strong impact on the success of digital transformation. The same applies for (Schallmo, A., & Daniel, 2018) roadmap, as they dedicated the 'digital potential' phase to determining the best practices and discovering new business model options.

- **Implementation phase**

The new business model implementation phase must be detailed in a project plan. The project scope includes all the activities that need to be executed and the deliverables of each activity. The schedule and the budget should be appropriately managed to avoid project delays and being over budget. Moreover, the roles and responsibilities of the implementation team must be defined.

The interviewees agreed on adopting a gradual approach to implementing the new business model. Companies must be cautious and evaluate the market response to the new business model. Based on the market feedback, the new business model may need to revisit the previous design activities to adjust and modify any of the nine elements to match internal and external needs.

Also, after prototyping and testing the new business model during the design phase, it would be more reasonable to deploy the new business model on a small scale to evaluate the market's acceptance of the new model and to avoid taking significant risks, which allows a company to fail fast and cheap.

Change resistance is one of the main reasons that digital transformation projects fail. For this reason, top management engagement is needed to lead the change management process. Change resistance among the employees is due to the fear of being replaced because they believe that if the digital transformation succeeds, they may lose their jobs and be out of the business. To overcome this issue, a proper change management plan is needed. Moreover, it is essential to relate the project objectives with the gains and goals of the employees. Upskilling the employees is another issue, as people need to understand that the market has changed, and they need to gain more digital skills.

- **Monitoring and controlling**

The interviewees emphasised that due to the limited lifetime of the business model, the continuously changing business environment, and the technology trends that disrupt the markets, a company must monitor its business model continuously.

The surrounding environment must be evaluated on an ongoing basis to ensure the model's effectiveness and respond to any market change that may affect the company's competitiveness. Any change or external influence on any of the nine elements of the business model may affect the rest of the elements, which requires an appropriate response to ensure the continuity of the work of the business model efficiently. Moreover, it would be helpful to monitor and measure the performance of the business model to ensure the achievement of the desired goals and the business objectives.

To achieve the continuous management of the business model, a dedicated team from different departments needs to be assigned to monitor and control the business model, keep an eye on the business environment, and scan any market trends or emerging technologies that may affect the business model and respond

accordingly. Ideally, it is always good to build a digital measuring tool and track the business model activities by making a digital methodology to measure performance and achievements.

Due to the importance of monitoring and controlling activities, (Osterwalder et al., 2012) dedicated an entire phase to managing the new business model after its deployment, including scanning the business environment and monitoring the business model continuously. The 'manage' phase includes modifying or adjusting the business model to correspond to any internal or external influencing actor.

On the other hand, (Gassmann, O., Frankenberger, K., & Csik, 2014) and (Schallmo, A., & Daniel, 2018) ended their frameworks by the implementation phase and ignored the continuous assessment of the business model and the business environment even after deployment.

6.1 Conclusion

This qualitative research investigated how to make a digital transformation for business models through business model innovation. As a result of the themed interviews with experts in digital transformation and the literature review, the research defined the terms 'digital transformation', 'business model', and 'business model innovation' and removed the ambiguity associated with these concepts. It also cleared the misconception about the role of technology in the digital transformation process and ensured its role as an enabler.

To achieve the desired digital transformation for a business model, the research has analysed three different business model innovation frameworks and matched their activities with the practices and approaches contributed by digital transformation experts. As a result of the analysis, the research has defined five phases with the underlying activities: initiation, planning, design, implementation, monitoring and controlling.

It can be concluded that the assessment of the business model's current status is the starting point for the whole transformation process. The human factor has

a decisive role in the success of this process by building the right team and ensuring people's engagement and commitment. Setting the objectives and business strategy is based on identifying the gap between the business model's current status and the desired future digital model. Designing and generating innovative ideas for the new business model is the most critical activity due to its iterative nature, which includes a lot of prototyping and testing to fail fast and cheaply. During and after the implementation of the new digital business model, a continuous evaluation of the business environment is needed to respond to any change that may threaten the business model.

The methodology used in the research was effective, and the results show congruence between the literature review and the interviewees' contributions. However, to build on the research results and enrich the conclusion, it would be useful to study the digital transformation of business models through one or more case studies to study the phenomenon in more depth and explore the impact of digital transformation on the organisational structure and the business processes and all the other business areas.

There is still room for research on the digital transformation of business model issues, as this process may vary based on the industry, company size, degree of change needed, and business environment.

Despite the success achieved by this research in identifying the phases and activities required for the digital transformation of the business model process, it would be better to study this roadmap through one or more case studies for companies in different industries. The case study method could not be adopted in this research instead of conducting interviews with experts due to the research's limited time. Some companies refused to disclose their digital transformation process because of information privacy.

The research is concerned with the digital transformation of the business model, but many other business areas are impacted by digital transformation that needs to be studied, such as organisational structure, business processes, and operations.

REFERENCES

- Aagaard, A. (2018). Digital business models: Driving transformation and innovation. In *Digital Business Models: Driving Transformation and Innovation*. <https://doi.org/10.1007/978-3-319-96902-2>
- Afuah, A. (2014). *Business model innovation: concepts, analysis, and cases*. Routledge.
- Christensen, Bartman, T., & Van Bever, D. (2016). The Hard Truth About Business Model Innovation @BULLET Reading Time: 30 min Recommended Harnessing the Best of Globalization Designing and Developing Analytics-Based Data Products Unleashing Creativity With Digital Technology. *MIT Sloan Management Review*, 58(1), 31–40.
- Deloitte. (2019). Turning your transformation into a successful journey. *Digital Enablement*, 1–16. <https://www2.deloitte.com/content/dam/Deloitte/at/Documents/human-capital/at-digital-enablement-turning-your-transformation-into-a-successful-journey.pdf>
- Fisher, C. M. (2010). Researching and writing a dissertation : an essential guide for business students. In *Researching and writing a dissertation : an essential guide for business students* (3rd ed.). Prentice Hall.
- Gassmann, O., Frankenberger, K., & Csik, M. (2014). The business model navigator: 55 models that will revolutionise your business. In *Paper Knowledge. Toward a Media History of Documents* (Vol. 3, Issue April).
- Gassmann, O., & Frankenberger, K. (2014). *The St . Gallen Business Model Navigator*.
- Ismail, M. H., Khater, M., & Zaki, M. (2017). Digital Business Transformation and Strategy: What Do We Know So Far? *Manufacturer Article*, November 2017, 36. <https://doi.org/10.13140/RG.2.2.36492.62086>
- Kavadias, S., Ladas, K., & Loch, C. (2016). The transformative business model. *Harvard Business Review*, 2016(October).
- Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business and Information Systems Engineering*, 57(5), 339–343. <https://doi.org/10.1007/s12599-015-0401-5>
- Osterwalder, A., Pigneur, Y., Smith, A., & Movement, T. (2012). Business Model Generation. In *Kybernetes* (Vol. 41, Issue 5/6). <https://doi.org/10.1108/03684921211261761>
- Otola, I., & Grabowska, M. (2020). BUSINESS MODELS: Innovation, Digital Transformation, and Analytics. In *CRC Press is an imprint of Taylor & Francis Group* (Vol. 1). <https://br1lib.org/book/5639751/1a874d>
- Perkin, N., & Abraham, P. (2017). *Building the agile business through digital transformation*.
- Schallmo, A., & Daniel, R. (2018). Digital Transformation Now! Guiding the Successful Digitalisation of Your Business Model. In *Springer Science+ Business Media, LLC*.
- Schallmo, D., Williams, C. A., & Boardman, L. (2021). Digital transformation of business models - Best practice, enablers, and roadmap. *Digital Disruptive Innovation*, July, 119–138. https://doi.org/10.1142/9781786347602_0005
- Schneider, S., & Kokshagina, O. (2021). Digital transformation: What we have learned (thus far) and what is next. In *Creativity and Innovation Management* (Vol. 30, Issue 2, pp. 384–411). <https://doi.org/10.1111/caim.12414>
- Schwertner, K. (2017). Digital transformation of business. *Trakia Journal of*

- Science*, 15(Suppl.1), 388–393. <https://doi.org/10.15547/tjs.2017.s.01.065>
- Sekaran, U., & Bougie, R. (2013). Research Methods for Business: A Skill-Building Approach. In *Leadership & Organisation Development Journal* (Vol. 34, Issue 7). <https://doi.org/10.1108/lodj-06-2013-0079>
- Stampfl, G. (2015). The process of business model innovation: An empirical exploration. In *The Process of Business Model Innovation: An Empirical Exploration*. <https://doi.org/10.1007/978-3-658-11266-0>
- Sun, Y., Yan, H., Lu, C., Bie, R., & Thomas, P. (2012). A holistic approach to visualising business models for the internet of things. *Communications in Mobile Computing*, 1(1), 1–7. <https://doi.org/10.1186/2192-1121-1-4>
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2–3), 172–194. <https://doi.org/10.1016/j.lrp.2009.07.003>
- Tonder, C. Van, Schachtebeck, C., Nieuwenhuizen, C., & Bossink, B. (2020). a Framework for Digital Transformation. *Journal of Contemporary Management Issues*, 27(11), 111–132.
- Tucci, & Afuah. (2003). *Business Models & Strategies Text & Cases*. 113(2), 207–221.
- Verina, N., & Titko, J. (2019). *Digital transformation: conceptual framework*. <https://doi.org/10.3846/cibmee.2019.073>
- Westerman, G., Calm  jane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). DIGITAL TRANSFORMATION: A ROADMAP FOR BILLION-DOLLAR ORGANISATIONS. *MIT Center for Digital Business and Capgemini Consulting*, 1, 1–68.
- Zimmermann, A., Schmidt, R., & Jain, L. C. (2021). Architecting the digital transformation: An introduction. In *Intelligent Systems Reference Library* (Vol. 188). https://doi.org/10.1007/978-3-030-49640-1_1
- Zott, C., & Amit, R. (2015). Business model innovation: toward a process perspective. *Oxford Handbook of Creativity, Innovation and Entrepreneurship*, 395–406.

<https://www.forbes.com/sites/forbescoachescouncil/2022/03/16/12-reasons-your-digital-transformation-will-fail/?sh=bfe9dc21f1ee>

APPENDICES

Appendix A

Interview questions:

1. What are the definitions, concepts, and components of DT, BM, and BMI?
2. What is the impact of digital transformation on the business? And what domains are affected?
3. What are the challenges facing the process of digital transformation?
4. Why do most Digital transformation projects fail?
5. What does a company need to make a successful digital transformation of its business?
6. What is the impact of the technology on the Business Model?
7. What frameworks, phases, and activities are needed to innovate a new Digital Business Model?
8. Who should be involved in the Business Model Innovation process?
9. How long will developing and deploying a new business model take?