

THE DIGITAL TRANSFORMATION AND ITS IMPACT ON SMALL AND MEDIUM-SIZED ENTERPRISES

Anita Kyurova¹

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Abstract

The present article examines the essence of digital transformation and the opportunities and changes associated with the application of technologies in small and medium-sized enterprises (SME's). An overview is provided to the existing digital tools and technology, like social, mobile, big data, analytics and cloud, that SMEs are adopting in the process of transforming their business operations. The paper explores the building blocks of a digital transformation journey and overlooks the planning and implantation stages of digital technology. A literature review was carried out to gain more extensive understanding of the essence of digital transformation and its impact on SMEs. In fact, the article pays special attention to the digital transformation process in SMEs.

Keywords: Digital Transformation; SMEs; business; Industry 4.0; technology; digitisation

JEL Codes: L20, M21, O33

1. Introduction

Over the past few years researchers have devoted vast attention on studying the notion of digital transformation (DT), where they have been trying to define it, evaluate its impact as well as outline the opportunities and challenges it brings for businesses and the economy. As a result of the advance of digital transformation, Sallam et al. (2020) forecasts that 75% of Fortune's top 100 global companies are going to incorporate organizational changes with the use of digital technologies by 2025. This is critical for the survival of businesses and those who fail to adapt, will vanish (Schwartz, 1999).

The rise of digital technologies, tools and experiences, etc. marks the stepping stone of the digitalisation of businesses in the modern economy and creates solid basis for building competitive advantage for businesses in the coming years. Both on European and global level, companies are appraising digital technologies as a key

¹ South-West University "Neofit Rilski", Blagoevgrad, Department of Management and marketing, PhD Student, e-mail: anitka970820@gmail.com; ORCID ID: <https://orcid.org/0000-0002-9524-4045>

strategic priority (Ahmedova, 2020). Even though digital business transformation is obstructing businesses in every sector by removing the barriers between people, businesses and processes (Schwertner, 2017), it is allowing them to create new products and services and improve their processes and procedures.

As a result of the adoption of digital transformation, businesses are having the ability to reconstruct their processes and business models, increase employee's innovative capabilities and efficiency as well as improve and personalize end-customer experiences. Lucas et al. (2013) and Gregory et al. (2019) add that digital transformation affects not only the social processes in the society, but also every industry with its speed, breadth and extent to transformation and digitalisation. Digitization is already perceived as an essential determinant of success and competitiveness for all business sizes and industries (Gerasimenko & Razumova, 2020). Small businesses understand the importance of digital transformation and some have already started their digital maturity journeys. As such, a good understanding of the specifics of digital transformation is a prerequisite for the effective functioning of small business. In this context, the purpose of the present study is to reveal the essence of digital transformation and assess why businesses are now taking strategies in order to embrace it.

2. Digital transformation

The notion of digital transformation is not a recent phenomenon, whereas the ideas of digital products, services and channels have been discussed by authors in the 1990s-2000s (Auriga, 2016). Prominent examples of this shift towards digital are – the use of social media for increasing awareness of fashion shops during the 1990s-2000s; followed by the usage of mobile phones and social media as mediums for customers to communicate with brands in 2000s-2015s; and later the use of PayPal as a direct payment option for businesses (Schallmo et al., 2018). The attention on digital transformation became even more prominent in 2016 during the Davos Forum, where digital technology were more constructively discussed (Min & Kim, 2021). The COVID-19 crisis also disrupted the economic activity worldwide and businesses were forced to implement digital transformation more radically (Clauss et al., 2021).

There are many definitions proposed by authors for digital transformation. Arunatilek (2015) claims that digital transformation is linked to the changes occurred as a result of technological change. Other authors believe that digital transformation refers to the process of implementing technology in process of building new business models, processes and procedures, software and tools that lead to increased income, efficiency and sustainable competitive advantage (Schwenter, 2017). Overall, digital transformation is associated with the development of new products, innovations, organizational change, new business models and strategies (Keeley et al., 2013; Fichman et al., 2014; Bharadwaj et al., 2013). In this paper, we focus on the definition provided by Vial (2019, p. 118), who believes that digital transformation is 'a process

that aims to improve an entity by triggering significant changes to its properties through combination of information, computing, communication, and connectivity technologies'. This definition doesn't only focus on the automation of businesses and implementation of new technologies, but on all improvements that an organization can undergo as part of their digital journey.

As such, businesses are now challenged to achieve digital innovation in order to maximize their business opportunities (Fichman, Santos & Zheng, 2014). According to Yoo et al. (2010), digital innovation is associated with new products, processes and business models that are enabled by the application of IT. As such, SME's critically need to adopt digital innovation in order to overcome the challenges of the external environment and improve their technical expertise (Matthews et al., 2012).

The development of digital products, services and channels have economic impact on different industries (Lau, 2019), for example – production, consumption, distribution industries as well as lead to industrial and social changes (Sallam et al., 2020; Bughin et al., 2018). Oh et al. (2022) indicate that the advance of digital transformation and the adaptation of consumers and the society to these new advances, is forcing all businesses to use of digital tools and experiences to meet the demands and requirements of their markets. Moreover, Lipton et al. (2016) claims that businesses are now restructuring their business operations, reorganizing their strategies and accelerating their digital journeys in order to keep their customer loyalty, which is the primary goal of every business.

Digital business transformation leads to a substantial change in business processes (Lundberd & Sandberd, 2020). Schwertner (2017) and Garzoni et al. (2020) claim that digital businesses are implementing digital technologies, like social, mobile, artificial intelligence (AI), analytics and the cloud in order to transform how a business operates and improve their operations. Table 1 encapsulates a summary of the most common digital technologies used that reinforce digital processes in enterprises.

Table 1. Digital technology that enable digital transformation in SMEs

Technology type	Characteristic
Cloud Computing	This is a relatively new type of technology for businesses, allowing them to have convenient network access when people need it to a shared place of customizable computing resources that can be accessed with negligible management effort and provider interaction (Schwertner, 2017). Companies are vastly relying on cloud

	technologies nowadays, whereas SMEs are increasing their investments in cloud.
The Internet of things	The Internet of things represent the interconnectedness of physical devices, vehicles, tools, buildings, etc. through the use of electronics, software, sensors, etc. that allows them to exchange data and communicate (Schwertner, 2017). This allows devices to be controlled remotely and reduces the human intervention in different activities. IoT also increases the efficiency, accuracy and the economic benefits for businesses by linking the external environment into the computer-based systems.
Mobile Technology	Mobile technology has enabled businesses to have real-time communication with their customers across the whole customer journey.
Data Analytics and Big Data	Businesses are facing the need to analyse their data in order to enhance their efficiency and productivity as well as the customer experiences. It is a challenge for many businesses to analyse their data, this is why they are using business intelligence tools.

Source: Schwertner, 2017

In addition, Oh et al. (2022) notes that these digital technologies has led to the advent of global platforms, new business models, customer experiences analysis and data-led services, forcing businesses to change the way they operate and develop new strategic models. Due to the digitization processes - machines, robots, devices and systems can respond and connect with the external environment to respond to the market changes. The introduction of new technology can predispose enterprises to satisfy customer's demands and needs, understand customer's behavior, update or create new products or services, and support the innovation processes in the organisation (Yousaf et al., 2021).

In fact, this marks the emergence of Industry 4.0, which is a new industrial scenario that marks the union of digital transformation with the socio-economic systems in the process of value creation (Muller et al., 2018). This process requires not only large investments and human experiences and knowledge, but also the

flexibility, fragmentation and smooth decision-making processes that are highly typical for SMEs rather than big organizations (Moeuf et al., 2017). Therefore, it is necessary to understand the specifics of digital processes in SMEs.

3. Small Businesses in digital economy

Small and medium-sized enterprises, these are firms that are having less than 250 employees or generate up to 50 million euros annually (European Commission, 2021), are of utmost importance in the modern economy. They constitute around 90% of all business, 60-70% of employees, and about 55% of GDP worldwide (Arnold, 2019). They are not only a source of employment, but also their operations are linked to increased innovation and productivity, which are key factors for countries' economic development (Herr & Nettekoven, 2017). Drucker (2009) states that small enterprises 'represent the main catalyst of economic development', being the key pillar for social-economic development.

In the modern economy, there are two types of SMEs (Neagu, 2016):

- Traditional enterprises – Enterprises that are characterized by the lack of long-term strategy, operating in a well-defined marketplace and the operations & production are passed down from generation to generation;
- Modern enterprises – Enterprises that aim to increase the efficiency and the rate of performance of their activities by competing with other businesses and are looking for new market ventures as well as implementing cutting-edge technology.

According to Neagu (2016), only 10% of SMEs are able to survive more than 5 years on the market. Thus, it is crucial for small enterprises to constantly look for new opportunities, differentiate their products and concur new markets. They have the capacity to implement new technology and create new products at faster rates compared to larger organizations due to their limited flexibility and efforts to improve old products without the implementation rigid technologies.

On the other hand, the implementation on digital transformation is characterized with complexity in the SMEs setting, due to the ramifications of cloud computing, IoT, big data and artificial intelligence are imposing on businesses during the planning, and implementation stages. The reason for these are the limited resources and the absence of analytical and business assets that can lead the digital transformation processes (Li et al., 2018).

Nambisan (2017) believes that there are three essential elements required for the successful execution of digital transformation in SMEs:

- Digital Artifact – This is a digital item, application or media content, which is a piece of a new product or service and delivers specific purpose or value to the final user (Ekbria, 2009);

- Digital Infrastructure – This presents digital technology and systems that stimulate communication, collaboration and computing competencies (Nambisan, 2017). As part of the digital transformation journey, digital infrastructures are regarded as more than technology components. Ciborra et al. (2000) claims that digital infrastructures as cloud computing, big data, social media, etc. are supporting business processes.
- Digital Platforms – They represent shared set of services and systems that enable the hosting of different offerings, among which digital artifacts (Parker et al., 2016).

As such, SMEs can become truly digital organizations by adopting digital technologies and platforms, utilizing digital capabilities and developing digital orientation in order to achieve growth and overcome the challenges of the surrounding environment (Garcia et al., 2019; Xiaocong & Jidong, 2010). Digital orientation refers to the adoption and utilization of digital technologies, digital artifacts, digital infrastructure and digital platforms, which act as a driver for value creation and are important in the process of implementation and growth of enterprises.

4. Implementation of digital technologies in SMEs

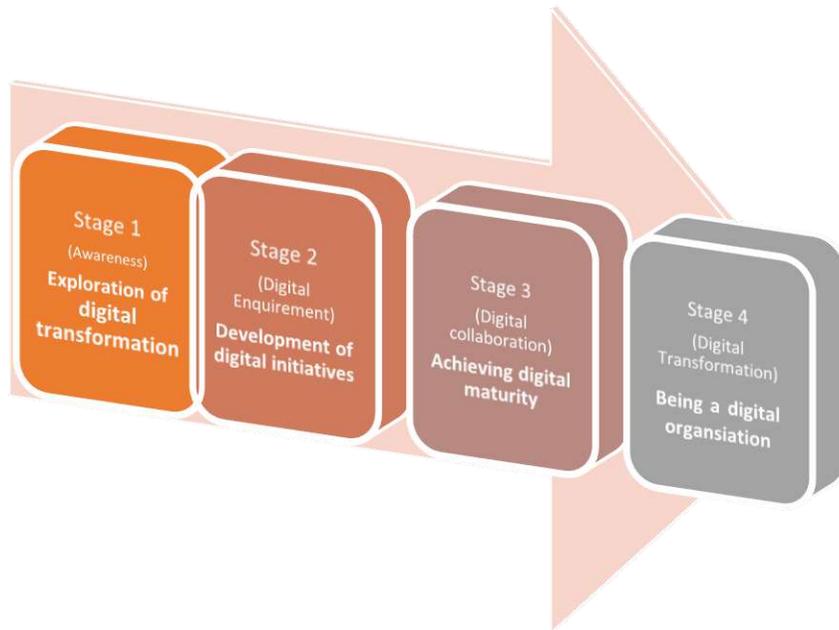
Digital technologies are affecting different sectors and industries, leading to the implementation of new business models and increased levels of innovation. Due to the need to incorporate digital transformation and improve their competitiveness on the global market, SMEs are hard-pressed to implement and use information technology (IT) as part of their operations. Pelletier and Cloutier (2019) indicate that businesses are having access to bespoke and free IT applications that can assist a variety of business functions, like:

- Marketing – ex. E-commerce platforms, Social Media Applications, Collaborations tools;
- Finance and Accounting – Secure payment solutions (PayPal);
- HR – Collaborative tools, Video conferencing (Microsoft Teams);
- Transport – navigation tools and apps (Uber).

SMEs are implementing different approaches for achieving digital transformation. Kane et al. (2019) have developed a 4-step approach for achieving a successful digital transformation journey (Figure 1).

Firstly, businesses are looking at their current strategy and aims as well as analysing the competitive environment. Stich et al. (2020) notes that this is essential in order to highlight the key needs and gaps of the organization and identify how digital tools and technologies can contribute to the digital transformation. During the first stage of the process, SMEs are facing minimal changes in the organization; rather they are exploring the different digital transformation options and processes.

Figure 1. Digital Transformation Process in SMEs



Source: Kane et al. (2019)

Secondly, the business should specify which digital maturity level they want to achieve – this can be achieved through a self-assessment, and identify what measures they want to implement (Stich et al., 2020). At this stage, the formulation of digital initiatives and processes as a result of the self-assessment is present.

In the next stage, the execution of digital initiatives is happening, resulting in businesses achieving digital maturity and the adoption of digital transformation in all business processes and goals. As a whole, at this stage, SMEs are executing the transformation roadmap in the process for becoming a fully digital organization, which is the last stage. Being a digital organization is characterized by entire digitalisation including the businesses' environment and ecosystem.

As a result, the implementation of digital technologies and tools are changing the global economic and business landscape. The success of the digital transformation is largely defined on the digital strategy developed by business leaders, who are not only promoting a culture that supports change but new inventions as well.

5. Conclusion

This paper indicates that digital business transformation allows small and medium-sized businesses to gain sustainable competitive advantage and adjust to the changing technology and environmental conditions (Wijayanti et al., 2021). No business can survive in isolation, thus they have to adapt to the changing environments. Digital transformation is essential for small and medium-sized businesses, allowing them to create innovative solutions, services and products through technology, with which they can communicate and attract customers as well as ease their operations and provide new working models for their employees.

The research of small business digitalisation is still limited, as researchers tend to focus on larger organizations with a few major exceptions (Chan et al., 2020). Similar to larger businesses, small and medium-sized enterprises are essential part of every economy, as they account more than half of the world's GDP. This creates an opportunity for more research in the area and understanding of: *How SMEs are engaging in the process of digital transformation and how they can successfully achieve digital maturity?*

Overall, technological changes are immensely changing the way of doing business. By understanding the different approaches to digital transformation, SMEs will be able to be more resilient, retain their loyal customers, respond more effectively to ever-changing market demands and be more competitive.

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