

Business Opportunities Unclaimed: Digital Disruption of Business Models

Viktorija BABICA

**Institute of Business Engineering and Management, Riga Technical University
Riga, LV-1048, Latvia**

Deniss SCEULOVS

**Institute of Business Engineering and Management, Riga Technical University
Kalnciema Str. 6-408,
Riga, LV-1048, Latvia**

ABSTRACT

“In times of change the greatest danger is to act with yesterday’s logic” said Peter F. Drucker. A company's ability to rise to the challenge of the disruptive innovations introduced by Industry 4.0 is the key success factor to benefit from the digital transformation. Digital transformation of business models and business process digitalization enables new ways of creating and capturing value and forms opportunities for the competitive advantage. Digital transformation is moving to the center focus of corporate development strategy, as well as attempts of ensuring flawless customer experience. The purpose of this paper is to analyze business opportunities emerged through digital transformation of business models and clear out reasons why those remain unclaimed by majority of organizations. The paper is among a few studies, which investigate digital transformation impact on business model, further research directions are provided. Through a systematic literature review, was concluded that the digital innovations affect entire areas of a business model of most organizations, organizational culture and strategy.

Keywords: Business model, business process, digital disruption, digitalization, digital transformation

INTRODUCTION

Digital transformation is an incremental process of change and disruption. Change is intermittent, unforeseeable, and much faster than response, [1] but is inevitable for development and innovation. Along with it comes disruption of existing systems, industries and markets. People have learned how to adapt to changes long ago, now they are challenged to anticipate opportunities before they emerge and respond to the changing demand and circumstances on an ongoing basis. Digital technologies are believed to be the drivers of competitive advantage. To remain the market position and to successfully compete in the industry organizations are challenged by digital technologies to redesign their business processes, develop new products and services quickly, interact across channels and analyze customer behavior in real-time.

Despite being a relatively new concept, digital transformation has already become a buzzword; many organizations still fail to benefit from it, some due to misapprehension of the process, others due to disregard of the evident industry trends. Practitioners may see process of digitalization, digital transformation or digital technology implementation in business

processes as with significant capitalizing potential but still resist to change. [2] Among organizational shortcomings presenting challenges to realize potential of digital innovations scholars mention unclear objectives and old work practices that do not fit with digital transformation. [3] Organizations lack knowledge of digital technologies’ potential [4] and skills to identify which technologies they should adopt to boost their business processes.

Several scholars argue that there exists certain ambiguity between terms connected with digital transformation. Therefore, the study first discusses the differences between terms defining digital transformation, then analyzes blocks of a business model that digital technologies intend to optimize. Digital technologies are implemented in organizations to increase productivity and develop value creation process. By the unclaimed opportunities in the present paper is understood the value lost or not created by the organizations.

The study focuses on the following questions: (1) how does the digital transformation affect existing business models? (2) what are the pitfalls when trying to capitalize upon digital innovations?

RESEARCH METHODOLOGY

The aim of the study is to explore opportunities arising from changes originated from digital innovations drawing on a literature review. Up to date several systematic literature reviews have been implemented aiming to define digital transformation. [5][6][7] The present study does not intend to identify strategy of designing and implementing digital transformation nor exploring the sectors and industries applying digital transformation, but rather defining opportunities provided by digital transformation of business processes and challenges organizations face during the change. The study seeks to distinguish how the areas of business models are disrupted by the digital transformation.

The approach used in this research consists of a systematic literature review. [8] The study started by determination of the selection criteria for articles to be analyzed. The articles were selected and retrieved from databases Scopus, IEEE Xplore Digital Library and EBSCO using Boolean operators (AND; OR) and it resulted in the automated search with keywords: “digital transformation” OR “digitalization” OR “business process digitalization” AND “business model”, which are believed to be the major terms of the research topic. The search was limited to the years of 2016-2020, articles that had the terms in abstract, title and authors’ selected keywords were selected as relevant for the research. Those were sorted through a manual process, with

a focus on mentioning changes in business model and organizational processes and the role of digital transformation in those. All the papers published before 2016 were excluded from digital transformation analysis based on the Gartner's hype cycle for emerging technologies from the year 2016 [9] in order to ensure consideration of the users' expectations and the real analysis of current trends. Due to the novelty of the research topic the evaluation criteria for articles was not selected. In order to obtain a comprehensive picture of current situation in business process digital transformation from a theoretical and practical point of view, the study uses different types of sources: scientific articles, already published trends' studies, conference papers, as well as reports of business consultations are used. At the end of the selection process 26 articles were chosen to be analyzed.

BUSINESS PROCESSES

Business process management is facing increasing interest in among scholars and practitioners, [10] it also includes process of digital transformation. In the frames of the present study business processes are understood as interrelations of events, activities, actors and objects [11] which outcome as a value provided to a stakeholder. Thus, area of impact of digital transformation is the all-in processes involved parties, objects and most important the value. In the frames of the study, process optimization is understood as the "process of assessing, analyzing, and improving the business processes that are important to an organization's success" [12]. That is dragging behind digital transformation in a lot of organization is the traditional approach to focus enterprise architecture on process standardization and integration, but not on continuous adaptation to the changing business, information, social and technological landscape [1] [13]. Increased competition due to emergence of new market entrants from different sectors and new competitors whose business's models adjust to the up-to-date customers' needs satisfaction compel organizations to undergo digital transformation. [14] Nowadays, all companies are called upon to make transformation to integrate the new digital ecosystem better and achieve this leap towards modern demand. [7] Practitioners are investing in business process for increasing efficiency [15] such as automation, cost and execution time reduction.

DIGITAL BUZZWORLD

Due to the vague definition of digitization, digitalization and digital transformation, and as some scholars do not clearly state what do they understood by the specific term, certain ambiguity arises [7], the present study while analyzing literature on digital transformation took into account also characteristic of terms related if the definition was applicable to digital transformation.

In the present study digital technologies are understood as "reprogrammable devices with functional logic; processes that allow to store, transmit, process data using the same devices and networks; processes that accelerate the creation and availability of digital devices, networks, services and contents" [16]. According to Gartner [17] digitization is the process of changing from analog to a digital form without any changes made to the process. The basis of digitalization, that is application of digital technologies, is to change traditional business model to digital simultaneously providing new value-producing opportunities. Digital business transformation (DX) aims to create a robust

digital business model via capitalizing on continued emergence of new digital technologies, for example, cloud computing.

Thus, DX is driven by the opportunities provided by disruptive technologies of industry 4.0 for data collection and exploitation that is the ubiquitous connectivity of products, infrastructure, companies and customers and the ever-expanding capability of components, products and systems to make decisions autonomously [18]. Globalization, increased and more specific, tough competition and constant seeking for competitive advantage are causing organization to go digital before others.

DIGITAL DISRUPTION

Digital transformation is not just integration of information technologies into business processes; it reshapes the entirely organization structure, its culture [4] and management concepts to meet stakeholders' interests [3]. There are two types of challenges: to implement and to obtain benefits from DX. [12] [19] [20] When engaging in DX organizations face fast-paced technological innovation which result in restructuring business processes, organizational structure and culture.

Organizations encounter threats such as data security, privacy, technological dependency and a high level of uncertainty when it comes to identifying which technologies they should adopt. [3] [21] [22] Scholars as well as practitioners indicate that industries lack of complete understanding on how to create and capture value from digital technology application. The lack of digital literacy results in failure to develop a clear, integrated enterprise strategy for digital transformation across a broad range of functions and difficulty in grafting new practices onto existing infrastructure and, old work practices that are not fit to take advantage of digitalization. [23] Managers lack clear guidance in terms of DX initiation, implementation, and execution.

According to Gigova functional challenges to implement DX relate to organization's bureaucratic system and hierarchical structure of authority [2] that results in resistance to change. Development of flexible organizational model which is adaptive to external changes is a basis for the successful digital transformation of organization.

DIGITAL TRANSFORMATION OF BUSINESS MODELS

The term "digital transformation" is used in articles in different context and with different aspects of impact, many scholars define concept and characteristics of digital transformation, but the clear definition is not found. The different definitions and characteristics of digital transformation may be categorized in three distinct elements: (1) transformation of existed and creation of new business models; (2) new ways of creating or developing existed value; (3) challenges regarding lack of knowledge of DX opportunities. Digital transformation requires digital literacy and competences to take the lead of changes.

According to Osterwalder, business model is nothing but scheme of a company's plan of profit obtaining by value creation including elements of business activities, processes and approaches. Digital technologies are key enablers of business transformation from extension to creation of new business models and automation and optimization of the core business processes [10] [14]. Li (2018) argues that digital technologies

have been a key driver of business model innovation, by enabling new ways of creating and capturing value, new exchange mechanisms and transaction architectures, and new boundary-spanning organizational forms [21]. The types of value enabled by digitalization include, innovation of new business models, products and services, customer needs real-time identification, facilitation in dealing with business challenges, risk management, quality management and enabling decision making through improved visibility. Digitalization is a strong value creation enabler, it opens totally new playground for competition, blur boundaries and lower barriers to entry [3] markets, especially for SMEs, modify criteria of success in the modern trade, enhance customers' expectation and satisfaction, increase the speed of innovation process. DX is a recent phenomenon, which assists enterprises to adopt to the changing rules of business.

The impacts of DX in an organization can be divided into three directions: the transformation of the customer experiences, the transformation of business processes, and the change of entire business model. [24] Digitalization is relative and companies may stand anywhere along the spectrum of digitalization. [25] Among studies and researches based on business DX conducted as by scholars as well by practitioners appear such terms as "degree of digital transformation" [19] and "Digital Intensity Index" (DII) [26]. DII defines the availability at a company level of certain digital technologies. Investment in digital technologies according to European Commission DESI report is low in countries such as Latvia, Bulgaria, Greece. According to Pflaum & Golzer models measuring the degree of DX are used to determine a firm's position in the transformation process [19] and to indicate potential problems and corresponding countermeasures.

OPPORTUNITIES UNCLAIMED

Digital technologies made possible rise of e-commerce, which in its turn enabled such business model concepts as freemium, on-demand services and continues access to shared goods and services, which provide unique experience for consumers.

Due to rapid development of technological innovations, organizations are forced to adopt to the highly dynamic business environment and react upon changing business rules. [27] The broad spectrum of opportunities believed to reach through digitalization, no unified approach nor streamlined process of DX implementation inhibit transition and execution of digital technologies [25]. Information technologies are changing work practices, redesigning organizations' business processes [27]. Utilizing the new technological possibilities creates competitive advantages [28] [13] [1]. Information technologies is nothing but an innovation of the certain period. Due to its variety of manifestation, innovation always provoked challenges of dealing with and understanding them. According to Schumpeter innovation as a creative destruction, that incessantly destroys the old one and creating a new one; innovation is simply "new combinations" of existing resources. [29] Digitally disrupted services and products provide substitute for traditional business models, becoming customer responsive, increase quality with no price differential or negative switching costs.

Scholars emphasize that digitalization and digital transformation provides ability to create new value by process improvement. [30] Servitization of products can be implemented because of the

continuous connection of the products with the manufacturer. [10] As the global economy is turning from product to service economy, acquiring digital knowledge is inevitable and crucial. DX provokes changes to which organizations either must adopt or oversee and capitalize, either way it requires existence of certain capabilities. Propensity to change defines existence of adaptive capabilities [1], those are necessary for exaltation of digital transformation to bring competitive advantage. Digital capabilities mean early identification and rapid response to emerged trends in the industry.

Digital innovations serve new ways of creating value, automate processes, extend and transform business models. [21] Automation of business processes means enhancing the existing activities and processes, that is supplement [21] but not replacement. Lederer mentions social software that supports integrating value from social human behavior in the business process management lifecycle, it offers its users opportunities to foster collaboration, such as expanding contact networks, exchange of knowledge, as well as the general exchange of information. [10] Example of that kind of social DX of business processes is business process gamification.

Customer experience is a key word in description of opportunities obtained after digital transformation [4] [30] [31]. How organizations perform and bring new digital value to customers [31] enhances customer experience. It is used to believe that traditional firms have natural advantages over the disruptive competitor (e.g. insurance, quality, reliability and professionalism), [32] but they are not as highly valued by the customer as convenience, availability and ease of access. Value of customers change as goes on development process.

Sathanathan [25] and Pflaum [19] claim that the most expected outcome of digital transformation for most businesses is reduction in cost and / or increase in revenue. As authors have stated there is no general approach for evaluation of return of investment in process of digital transformation.

Information technologies implemented at a work process, provide new opportunities for data collection and exploitation, improve efficiency in decision-making process, as access to information is facilitated. Simultaneously are improved selling and marketing techniques. Zimmermann et al. [13] argues that digitized products and services support the cocreation of value. Implementation of information technologies means the ubiquitous connectivity of products, infrastructure, companies and customers; as well as the ever-expanding [18] capability of making decisions autonomously.

Pitfalls

According to number of scholars, the reason why many organizations fail to fully obtain benefits arisen with digital technologies introduced by industry 4.0 is that digital transformation remains poorly understood, [21] CEOs lack digital literacy as well as vision which processes of their organizations is possible to digitalize. Companies lack guidelines how to successfully implement digital transformation strategy. Some of the challenges linked to failure to attain successful digital transformation revolve around: ambiguous understanding of the influence of IT sectors development of transformation strategy; selection of an appropriate organizational structures; development of the efficient processes relevant for processing Big Data; changes in key skills, abilities and leadership required for digital transformation and development of shared values,

channels, and approaches to interactions in the new digital economy. [12] [31] In the industry is present lack of knowledge regarding the existence [4] and opportunities of digital technologies.

The challenge arisen with digital transformation is that many practitioners lack experience to identify the beneficial information technologies for their business, and do not have abilities to determine the digitalization potential of their organizational processes.

Content analysis procedure

Nvivo is a qualitative software tool that helps to code and analyze dataset. In the present study Nvivo software was used to analyze correlations between business model digital transformation and opportunities transformed organizations obtained, and challenges those face. Based on the methodology of Krippendorff, [32] were selected context units of analysis. Mention frequencies of the terms related to the study questions (such as opportunities and pitfalls) were stated.

Table 1

Digital Transformation Impact			
Node	Codes	Relevant description	Mentions
1. Opportunities / Improvements in	1.1. Customer experience	Enhance; extend; understand; faster & better service; individual approach; improve; meaningful; compelling; increase satisfaction; holistic; ultimate; within boundaries; defined segmentation; digitally conceived; loyalty	36
		Process improvement; transformation in creation; transform; identify (customers' * new sources of; exclusivity; personalization; differentiated; multiple propositions; increase; sensing; new * delivery models; capture; * architecture extended; innovation; new; cocreation; unique; emergent;	521
	1.3. Product and services *	Digitalization of *; expanding capabilities of; transform; digitized; digitalized; smart; extensive range of online *; intelligent; unique and innovative; artificial intelligence; digital automation; mass production; individualization; integrated; developing new; servitization; substituting; non-physical;	576
	1.4. Business model	Increased productivity; change; digital; reconfigured; scaling up of a traditional; unprecedented ideas; modification; creates new value; innovation enabled; extention; transformation; sufficient; efficient; refined;	334
	1.5. Process management	Automation of monitoring; robotic processes; integrated systems; improved productivity; creation of added value	68
	1.6. Revenue*	Increase; create new * model; new sources; new market opportunities; reduce costs;	53
2. Challenges	2.1. Digital literacy	Lack of frameworks and guidelines; vast amount of opportunities; lack of streamlined processes; lack of knowledge; lack of skills; lack of agility; lack of understanding; lack of maturity; lack of experience; lack of control; lack of clarity;	38
	2.2. Resistance	Conservatism; bureaucracy; avoidance; existing processes do not fit	5
	2.3. Investment	Lack of investment; requirres continuous investment;	22

The analysis began with authors' manual check of the selected articles to understand the possible variety of codes. First the relevant parts of the selected studies were coded by going through each selected study, then the codes were used to makes the tree maps and see words related to the specific opportunity or pitfall mentioned. It was necessary to compare and identify relations of digital transformations and business optimization. Table 1 provides the final obtained results, which were interpreted in the study above.

DISCUSSION

Organizations struggle with capitalizing on digital transformation, which anticipates rewriting the rules of competition [4] face high uncertainty regarding the adoption of digital technologies and lack guidance on how to make related decisions systematically [4], lack investment [2]. Digital technologies are often used to add value to core services by extending [21] and enhancing user experience in existing markets. According to Mahraz et al. digital transformation is essential for all companies, regardless of their size and sector of activity. [7] Further discussion includes question if every industry can benefit at the same degree from DX. Stewart argues that the propensity for an industry to be disrupted depends on its performance and structure, particularly regarding the degree of digital sophistication and the availability for information to flow. [34] Assessment of digital potential quotient, return on investment in digital transformation as well as developing a comprehensive index of digital transformation as the focus of future research intends to set out criteria, which provide in-depth image of the present situation.

CONCLUSIONS

In the present study a systematic literature review on digital transformation was performed. Digital transformation is introducing technological innovation to every aspect of organization performance in order to create new value and increase competitive advantage

Changes enabled by information technologies impact product and process innovation as well as development of an innovative business models. It is unarguable that DX and digital innovations create value, result in new knowledge acquisition and process innovation development. Digital transformation is affecting business models, customer experience and operational processes. The main challenges concerning DX as stated are lack of comprehension and digital literacy, difficulties with scalability and issues with security, companies' resistance to change.

Inclusive digital transformation of business processes is possible when both external and internal processes are digitally enabled, that means customers obtain digital experience and within company are implemented digital process, as the result arises new business models, and partially disrupted markets for digital businesses. The further research aims to study approaches of evaluation of return on investment for implementation of digital domains; to study index of DX, which may include different variables and be the indicator of a company's investment attractiveness; to study social aspect of DX such as gamification.

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