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Issues of digital transformation of business models in the service sector

Abstract

The purpose of this article is to summarize and present the main features of the digital transformation of service business models. *Methodology.* The authors propose to consider the strategic vector of digital transformation of business models in the context of the formation of the digital economy as a new way of transforming business models and processes of all types of activities. The study based on the analysis of successful foreign and domestic experience allowed to summarize the key provisions of the digital transformation of business models in the service sector. The authors determine that the goal of digital transformation of the business model is to increase its economic efficiency through the introduction of digital technology in all areas of activity, in developing a strategy it is important to consider the directions of digital transformation. The authors present scientific and methodological approaches of leading international organizations to the interpretation of the term "digital economy" and give their own definition, taking into account the context of business models. *Practical implications.* Digital transformation (digitalization) is seen not just as support through IT components of existing business models, but the transformation of the entire business model, whose main objective is to ensure flexible and rapid change. functioning of the business based on the use of the latest advances in ICT, taking into account the specifics of the business (product, service, product portfolio, services). Based on this definition, the authors consider the main components of a digital business model transformation strategy. *Value/originality.* It is justified that the digitalization of the business model does not involve a simple transformation of technology, but a change in the business model and business processes. In these circumstances, it is reasonable to consider the following components of digital strategies to improve the efficiency of the business model of service enterprises.

Keywords

Service sector, digital economy, digitalization, business model

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1 Introduction

One of the main trends in today's global economy is related to the increasing share and importance of services. This is evidenced by UN data, according to which employment in the service sector has increased from an average of 42.1% in 2005 to 51.7% in 2018. In developed countries, such as Great Britain, Germany, France, the United States, and Japan, this figure exceeded 70% (UNSTATS, 2018).

In these conditions, business strategies for the development of service industries, in which the strategic vector of digital transformation of business models plays an important role in the current environment, are of particular relevance.

The issue of the impact of digital transformation on the business model of the service sector is considered on the basis of business process management. It is determined that the benefits of digital transformation (growing opportunities, as

modern information and communication technologies allow to effectively change the service to meet customer needs or create fundamentally new products) can be used by transforming business models.

2 The digital economy and its impact on business models

Consideration of the strategic vector of digital transformation of business models should be carried out in the context of the formation of the digital economy as a new way of transforming business models and processes of all types of activities.

Table 1 presents scientific and methodological approaches of leading international organizations to the interpretation of the term "digital economy" and gives the author's definition, taking into account the context of business models.

According to the author's definition from Table 1, the digital economy can be seen as a global trend that requires economic actors to transform business models using a wide range of ICT innovations through the formation of new digital skills and opportunities for society, business and government.

The study (Voskolovich, 2019) notes that the use of digital technologies to promote services, interact

with partners and consumers, the readiness of businesses and government agencies for digital transformation contribute to the spread of network model of organization and management in services and reduce costs and efficiency.

The relevance of digitalization can be illustrated by the established KPIs for the development of the digital sphere of Ukraine until 2030, the achievement of which requires the expansion of the service component, in particular in the field of innovation. Thus, the digitalization of services should also be considered in terms of the development of the domestic ICT market and the "digitalization" of the country in terms of management, organizational, investment, financial processes. The development of the services sector on the basis of a combination of modern market mechanisms and "smart activity" of the state will allow the service sector of Ukraine in a few years to move from an outdated environment to a modern one, i.e. to make a "digital leap" (Fishchuk, 2016).

From the point of view of building a business model, the technological cycle of the service sector (Kuznecov) should be divided into the following stages:

1. Determining the composition, capacity and schedules of material and technical resources.

TABLE 1 Generalization of definitions of the concept of «digital economy»

The author of the approach	The essence of the approach to definition
Australian Government, 2009	A global network of economic and social activity, supported by platforms such as the Internet and mobile and sensor networks
World Bank, 2016	A new way of economy based on knowledge and digital technology that shapes new digital skills and opportunities in society, business and government
British Computer Society, 2013	The economy is based on digital technology, but more by that we mean doing business in markets based on the Internet and the World Wide Web.
European Parliament, 2015	A complex structure consisting of several levels/layers connected by an almost infinite and ever-increasing number of nodes
Fayyaz, 2018	Digitally based markets that facilitate the trade of goods and services through e-commerce on the Internet
Economist, 2014	An economy that can provide high-quality ICT infrastructure and mobilize the power of ICT for the benefit of consumers, business, and government
Deloitte, 2019	A form of economic activity that emerges from the networking of people, businesses, equipment, data and processes. The foundation of the digital economy is hyperconnectedness, that is, the growing interconnectedness of people, organizations, and machines, shaped by the Internet, mobile technology, and the Internet of Things
European Commission, 2014	An economy dependent on digital technology
OECD, 2015	The digital economy is characterized by dependence on intangible assets, massive use of data
European Commission, 2018	The digital economy is a major source of growth. It will stimulate competition, investment, and innovation, resulting in better services, greater consumer choice, and the creation of new jobs
World Bank, 2016	An economy in which, thanks to the development of digital technology, there is an increase in productivity, competitiveness of companies, lower production costs, job creation, reduction of poverty and social inequality
Author`s approach	A new way of economy based on the creation, dissemination and use of knowledge, digital technology and related goods and services in networked business models

Source: summarized by the authors

2. Formation of financial and economic indicators (analytics, setting tariffs, price lists, etc.).

3. Formation of relations with service payers (contracts, etc.).

4. Registration of inquiries (appeals) of citizens.

5. Provision of services.

6. Preparation of statistical reports and financial documentation (invoices for payment, etc.).

The described processes take place in any service enterprise. However, depending on the profile, market position and business model philosophy, each of them acquires a certain level of importance for the corresponding business model. This makes each company unique, including in terms of creating a business model.

Realize the digital transformation of business models in the service sector is possible on the basis of the following elements of the formation of digital culture (Cherniev, 2019):

1) «digital by default»: maximum use of digital tools everywhere instead of analog;

2) quality and timeliness of collected data, use of digital tools for as many procedures and processes as possible;

3) «fail fast, fail cheap» – the cultivation of experiments and the perception of unsuccessful results of the introduction of digitalization experiments as a source of valuable experience;

4) encouraging employees to make independent quick decisions;

5) ensuring rapid adaptation and flexibility of business models to radical changes in the environment;

6) accelerate the implementation of digital projects through the involvement of external contractors of IT solutions.

It is also important that in the context of digital transformation, governments are in many ways regulators of the service market. They determine the necessary volume and quality of services for the population. They need a system of complete accounting of all services provided, which in a digitized environment makes it possible and is the result of individual cost and revenue analysis for each case of service, creating a system of quality control of services. The implementation of this task is impossible without creating a multi-level system of standards (state, industry, enterprise level) in the field of service and mechanisms to monitor their implementation. Only with this approach it is possible to implement control functions for compliance with the parameters set by the standard, both at the level of the system as a whole, and at the level of the sphere of services.

3 Service sector business models digital transformation

A review of successful foreign and domestic experience helped to summarize the key points of

the digital transformation of business models in the service sector:

– integration of various technologies (mobile, social, web, CRM-systems, etc.) with sales and customer service technologies;

– ensuring high-quality permanent two-way communication between the producer and the consumer of the service;

– effective combination of technology and human resources, maintaining a balance based on the needs of the target audience and the properties of the service;

– business models should be relevant to market requirements, developed and improved based on evaluation and analysis of interaction results, response to customer needs and adjustment of service.

In terms of improving the economic efficiency of the business model, the use of digital technology is now a critical success factor in terms of promoting the service in the market and provides an undeniable competitive advantage. This can be confirmed by the relationship between the development of the digital economy and GDP growth in the Global Connectivity Index and the Global Competitiveness Index (2019) (KMU, 2021).

Thus, the dynamic changes and transformations in the global economy require both states and individual enterprises to develop and implement innovative market strategies. And an important component of the corresponding transformation of business models is the vector of digitalization of the service sector. In terms of business modeling, the vector of digital transformation should be seen as the basis for other tools to improve the efficiency of business models, as in recent years it has become a mandatory topic of discussion of the current state and prospects for all areas of business. However, in practice, experts often encounter a lack of a clear understanding of the essence of digital transformation and the specifics of its practical implementation in the business model, particularly in the service sector.

The relevance of digital business transformation can be confirmed by the following facts. The search for information about it increased by more than 30% in 2018 alone, and by the end of 2019, its total value reached \$1.7 trillion according to various estimates. Despite this, a 2018 IDG State of Digital Business Transformation study found that 95% of startups have digital business plans, but that number drops to 87% among traditional companies founded 50 years ago or later. In addition, only 38% of traditional enterprises have actually implemented a digital strategy (Cifrovaya transformaciya dlya biznesa). This shows that its implementation is a serious problem for businesses. In particular, 35% of Wipro companies surveyed indicated the lack of a clear strategy as the main barrier to digital

transformation, and 25% noted the lack of a common understanding of its essence (7 oshibok cifrovoj transformacii).

In today's environment, we propose to define digital transformation (digitalization) not just as support for IT components of existing business models, but as a transformation of the entire business model, whose main objective is to ensure flexible and rapid changes in the functioning of the business based on the latest ICT advances, taking into account the specifics of the business (product, service, product portfolio, services). Based on this definition, the following components of a digital business model transformation strategy can be considered:

1. Drawing up an agreed scheme of business goals and objectives, forming a system of key performance indicators.

2. Drawing up of the coordinated scheme of the purposes and tasks of digital transformation of business, formation of system of key indicators of efficiency of digital transformation.

Digital transformation should automate basic workflows while increasing the performance of non-digital ones.

3. Forming a list of projects and activities for the practical implementation of the scheme developed in stage 2.

At this stage, it should be borne in mind that the entire list of components for the transformation of the business model of the enterprise can not always be achieved at once, a complete and simultaneous digital transformation creates an excessive burden, because it is necessary to automate all the business processes within a single project. This approach to change leads to labor-intensive projects that do not produce the expected results.

In general, as practice shows, the IT project portfolio can include up to hundreds of projects. Keeping them together and coordinating them with each other is a very complex management task.

4. Formation of business models for the coordination of the list of projects with strategic, program documents of the enterprise, the distribution of functions and responsibilities between divisions of the enterprise.

Digital transformation is a complex process involving a large number of participants that requires the creation of a system of interaction.

5. Financial analysis and risk analysis.

The success of digital transformation lies in identifying the processes that digital change can affect in the short term to lay the groundwork for increased connectivity and long-term automation.

Since the goal of digital transformation of the business model is to increase its economic efficiency through the implementation of digital technologies in all areas of activity, it is important to consider

the following areas of digital transformation when developing a strategy:

- creation and development of new business models;
- formation of a new approach to data management;
- digital modeling;
- introduction of digital technologies and platform solutions;
- creating a digital environment.

Thus, the digitalization of the business model does not involve a simple transformation of technology, but a change in the business model and business processes. Under these circumstances, the following components of digital strategies to improve the effectiveness of the business model of service enterprises are worth considering:

- creation of organizational and technological platforms for further development of the IT component of the business;
- organization of effective management of the activities of units working in the field of information technology;
- providing information assistance in making management decisions to maintain and develop IT infrastructure based on evidence (analytical support);
- ensuring continuous provision of IT services of the required quality for business units;
- building effective two-way communications with users;
- reducing the total cost of ownership of IT resources through the introduction of service-oriented model of work and process principles in IT.

The relevance of certain components of digital strategies to improve the efficiency of the business model can be confirmed by the results of analysis of trends in the global digital economy, set out in analytical materials (Cifrovaya strategiya Ukrainy 2020: uspeshnaya integraciya strany v globalnyj rynek). They allow to conclude that the main source of business models' efficiency is not just data, but the ability to work with them and analyze them. The ability to work effectively with data in Ukraine can contribute to the development of a new component of the service sector – information-analytical, as well as the creation of new jobs and new tools for managing the business economy.

The experience of US companies reviewed in the study (Bauer, Podvojskij, Kotova, 2018) shows that almost all of them form strategies for transforming production technologies, products and services into digital formats in order to minimize costs that do not prevent reduced productivity and unique technological and competitive advantages. This means that production processes are focused on new operating business models, and companies are becoming digitalized and automated (Model-based Enterprise, Digital Enterprise, Smart Factory).

In general, companies use five main approaches to increase the efficiency of digital transformation (Bauer, Podvojskij, Kotova, 2018):

- digitalization;
- advanced analyst;
- intelligent automation;
- outsourcing of business processes;
- redesign the process of minimizing costs without compromising performance based on modern software.

From the point of view of the presented approaches, the main challenge for the Ukrainian business sector related to the digital economy is due to the fact that business process advantages to support business models are basic to the digital transformation. At the same time, the estimates of international experts on a higher level of socio-economic impact of digital technology on the development of the country, in our opinion, are due to the lower starting position of Ukraine compared to the leading countries in the field of digitalization.

In particular, the author's study of enterprises in Sumy and Kharkiv regions allowed to note the average level of digital competencies and motivation of business leaders to digital transformation. At the same time, the motivation of enterprises in the service sector is lower than the industry average.

It is generally recognized that these trends are accompanied by a low share of enterprises using digital competence models, an underdeveloped and often non-existent system of training, retraining and improving the digital competence of enterprise employees, a shortage of specialists in the field of applied ICT, including in the service sector.

The issue of digitalization correlates with low innovation activity of enterprises (an example of digital innovation is the purchase of software for new equipment, etc.).

The analyzed statistics of innovation activity shows that so far innovations are engaged mainly in large high-tech enterprises, enterprises of individual regions of the country, as well as a relatively small number of innovative enterprises and start-ups. In general, more modern approaches, susceptibility to digital technologies are demonstrated by new enterprises.

Since the scale of digital technologies used by enterprises is quite small, business models based on them are in the early stages of formation. In these circumstances, the paper believes that the digitalization strategy should be based on the stages of digital transformation, aimed at improving the efficiency of existing business models by piloting digital solutions to the full use of digital solutions (digital business model). This strategy will provide the conditions for the emergence of new, digital-based business models and interactions; it will create the conditions for the emergence of new services and services in digital form.

However, for this, in conditions of limited resources, it is necessary to know where and how to invest, to understand the benefits of digitalization.

It should be emphasized that digitalization is a process that is active in almost all industries in modern conditions, but in different sectors it occurs at different speeds. There is also considerable differentiation at the level of individual enterprises, clusters of enterprises or regions.

According to an analysis by BCG experts, B2C sectors have historically led in digital adoption, particularly through the use of digital marketing tools, but as Industry 4.0 spreads, digital transformation in B2B sectors is increasing. Given the need for Ukraine's transition to the rapid development of technological sectors, the urgent task is to develop an appropriate digitalization strategy that will take into account these aspects.

4 Conclusions

Thus, to develop appropriate strategies, digitalization should be seen as the fullest use of the potential of digital technology in all aspects of business processes, products, services and decision-making approaches. At the same time, it should be borne in mind that the mere availability of technology is not sufficient for effective digital transformation. For the digitalization process to be complete, clearly defined business goals and relevant data are required. Thus, digitalization is not possible without three dimensions: an articulated business goal in the context of business model efficiency, data availability, and relevant technology.

Given the limited resources and the need for an evolutionary approach to digital transformation, we propose to consider the features of the digital transformation of the business model at the following levels:

- creation of technological solutions without a radical overhaul of related business processes by implementing not very large and not very risky, stand-alone initiatives or products;
- full integration with the organization's core systems as part of a comprehensive program by moving from piecemeal initiatives to a broader transformation of the enterprise's operating model, including changes in business processes, organizational structure, key performance indicators, and staff qualifications;
- creation of an integrated digital platform that implements the unique competencies and know-how of the organization's business model through digitalization of interaction with external suppliers, customers and contractors, positioning and promotion of existing products and creation of new products.

The result of the digitalization strategy of service enterprises, in our view, is the gradual creation of

a unique ecosystem of innovative technologies and services that will use the potential of the digital platform to improve the efficiency of the business model. This is possible through the simultaneous implementation of several technologies that create conditions for synergy in the "business tasks – data – technology" complex.

At the same time, assessing the impact of digitalization on productivity remains a challenge, and different studies have reached different conclusions. Some have shown that online sales increase productivity; this is especially true for small businesses and services. Other studies emphasize the importance of economies of scale and networking, as well as additional factors such as skills and organizational change. At the same time, other studies have failed to find a strong impact on productivity, and they suggest that the world may be witnessing a return to the "productivity paradox".

There are also some statistical problems and other difficulties in assessing the impact of digitalization on productivity. In addition, it will take time to adapt and diffuse the technology, and for the benefits to become visible and measurable. Currently, only a limited number of service businesses have fully embraced digital technologies in support of the business model, with micro, small and medium-sized enterprises in developing countries lagging the furthest behind. Therefore, the fullest impact on labor productivity will be reflected in statistics only when countries and enterprises move from the stage of implementation to the stage of mass deployment of the digital economy.

To assess the impact of digitalization, it is necessary to consider it depending on the specifics of the business and industry, that is, within the framework of a specific business model. This will create a full-cycle digital business solution: from understanding customer needs and finding the best solution to integrating it into the enterprise operating model.

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