

Enterprise transformation as a consequence of the transition to a digital economy

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Abstract. It should be noted that the wide and ever-expanding distribution of digital technologies can soon radically change the landscape of the entire economy. The use of new technologies, customer focus, flexibility and transparency of the main processes - all this is a significant competitive advantage. The concept of “digital economy” is a relatively new and extremely important phenomenon, the scope of which is expressed in two-digit rates of annual growth throughout the world. This phenomenon is not only of economic and political nature, but also of technological progress.

This research is devoted to the study of what types of enterprises exist in the modern economy, and what impact digitization has on them. As part of the study, an analysis was made of foreign and domestic sources, which described approaches to the definition of “digital economy” and “digitalization. The types of enterprises in the modern economy were also identified and a list of actions to be taken in the digital business transformation was presented.

Keywords: digital economy, digital transformation, business-processes, business-models

Subject of the research.

The concept of “digital economy” is a relatively new and extremely significant phenomenon, the scope of which according to research data is expressed in two-digit rates of annual growth throughout the world. This phenomenon is not only of economic and political nature, but also of technological progress. Together with these processes, digital sensors are being introduced into an increasing number of devices (the so-called “Internet of Things”), the creation of new personal devices, new digital models (cloud data processing, digital platforms and services), the dissemination of practices of using data arrays using the “big data”, new methods of data analysis and decision-making algorithms, new automation technologies and robotization.

The research question is the enterprise transformation in the digital economy – how business processes, enterprise architecture and models transform from analog to digital form.

Theoretical background

In the study One of the most important steps is the clarification of the concept of “digital economy” due to its uncertainty and close interconnection with the traditional economy.

There are a vast number of definitions of the term “digital economy”, which have been proposed since the publication of the first cited work on this topic. For the first time, the term is found in *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*. According to it, the essence of the digital economy is “not only in network technologies ... but in the interaction of people through network technologies that combine intelligence, knowledge and creativity to make a breakthrough in creating social capital and well-being”. Thus, the author focuses on the relationship between the new economy, new business-models and new technologies, that is, how one component is the cause of the other.

In *Advancing the Digital Economy into the 21st Century*, Neil Lane defines it as “the convergence of computer and communication technologies on the Internet and the emerging flow of information and technologies that stimulate the development of electronic commerce and large-scale changes in the organizational structure,” that is, focuses on e-commerce and the impact of the digital economy on privacy, innovation, standards and the digital divide.

In *Understanding the Digital Economy: Data, Tools, and Research*, the authors point out that it is necessary to consider the concept of the digital economy from different points of view - macroeconomics, the labor market, competition, changes in the organizational structure.

Dahlman in *Harnessing the Digital Economy for Developing Countries (OECD)* focuses on the potential of digital technologies to achieve inclusive and sustainable growth with proper use of the advantages they create and gives the definition that “the digital economy is a combination of common technologies and economic and social activities carried out by Internet users using appropriate technologies. The digital economy thus includes the physical infrastructure that digital technologies (broadband conducting networks, routers) use, access devices (computers, smartphones), information systems (Google, Salesforce) and the functionality they provide (Internet of Things, analysis big data cloud computing)”.

In *What is Digital Economy?* Deloitte defines digital economy as “a form of economic activity that arises from the billions of examples of networking among people, businesses, devices, data, and processes. The basis of the digital economy is hyper-connectivity, that is, the growing interconnectedness of people, organizations, and machines, which is being shaped by the Internet, mobile technologies, and the “Internet of things”.

In Russia, this concept appeared quite recently and is connected not so much with its research, as with its application in the state development policy, the new standard of economic activity.

The first official definition of the digital economy was given in Presidential Decree No. 203 of May 9, 2017 “On the Strategy for the Development of the Information Society in the Russian Federation for 2017–2030,” and has the following form: “The digital economy is an economic activity In which the key factor of production is data in a digital form, processing of large volumes and the use of the results of the analysis of which, compared to traditional forms of management, can significantly improve the efficiency of various types of production. and, technology, equipment, storage, sale, delivery of goods and services. ”

In the Program for the Development of the Digital Economy in the Russian Federation until 2035, as part of the terms with which it operates, a more precise definition of the digital economy is given, which, on the one hand, corresponds to the generally accepted notion of “economy” (economic activity of the company, as well as emerging in the system of production, distribution, exchange and consumption), on the other hand, reflects the characteristics of the infrastructure of the digital economy and its focus on optimizing production, distribution, exchange, consumption and increase of the level of social and economic development of the states: “Digital (electronic) economy is a set of social relations developing using electronic technologies, electronic

infrastructure and services, technologies for analyzing large amounts of data and forecasting in order to optimize production, distribution, exchange, consumption and increase the level of socio-economic development of states. ”

The essence of the definitions is also influenced by the specifics of a particular historical period. The first definitions were built on opposition to earlier concepts, such as “information economy” and the wider concept of “information society” associated with it. Don Tapscott, for example, stated that the digital economy covers two types of economic activity. The first type - informational - implies the performance of basic tasks, such as loading static information onto network resources; the second type, which is related to communications, includes activities made available through the Internet. Eric Brynjolfsson and Brian Kahin stated that “the term “ information economy ” has acquired the meaning of a wide, long-term trend of further expansion of information and knowledge-based assets, as well as the value associated with real assets and products associated with mining industry and manufacturing industry. The term “digital economy” refers exclusively to the ongoing and still incomplete transformation of all sectors of the economy thanks to the digitalization of information using computer technology.” The authors sought to demonstrate that something was going on that went beyond the preceding concepts.

However, the possibilities of the Internet in trading are also considered and thus included in the definitions of the digital economy. IT-based business activity was mentioned as a component of the digital economy in the report of the US Department of Commerce *The Emerging Digital Economy*. In 2000, in the *Understanding the Digital Economy* collection, this tendency became even clearer — both editors and collaborators attributed e-commerce to the digital economy; it was the dotcom bubble period.

In addition, the above definitions recorded the first appearance of the two most important components of the definitions of the digital economy. The first is the differentiation of components. For example, Rob Kling and Robert Lamb in their work, based on the publication Lynn Margherio, identified four main components of the digital economy:

“Digital products and services. This component includes products delivered using digital technologies, as well as types of services, mainly delivered in digital form (that is, information services online, software sales, electronic education, etc.).

Mixed digital products and services. This category includes retail sales of real goods (for example, books, flowers, hotel rooms, as well as related sales and marketing).

IT dependent services or production of goods. This group includes services, the provision of which is critically dependent on information technologies (for example, accounting services or complex technical projects), the production of real goods, during which the application of information technologies is crucial (such categories of goods that require high-precision mechanical processing with the use of computer numerical control, or chemical plants controlled by computers).

The IT industry segment that serves the three segments of the digital economy under consideration. It discusses the products and services of the IT sector, which are mainly designed to serve the three aforementioned components of the digital economy. This includes manufacturers of network equipment and personal computers, as well as firms engaged in IT consulting (some analysts apply more extensive concepts to the IT industry and include communication equipment, including television and radio broadcasting, and communication services)”.

This differentiation is a kind of recognition that ICT-based products and related services are components of the digital economy.

The second innovation is the indirect recognition of the fragility of the boundaries of the digital economy. Using the words “significantly”, “substantially”, “intensively”, “roughly speaking” and also “critically”, Kling and Lamb appeal to the subjectivity of perception of the concept under consideration and show that there is no face that would allow to clearly identify These or other types of economic activity towards the “digital economy”.

Similarly, Thomas L. Mesenburg separates the digital economy into ICT infrastructure products and the use of ICT for economic processes. However, in later works, the author decides to consider the phenomenon beyond the scope of electronic commerce and also includes in its classification the use of ICT for business activities. Along with the theses of Kling and Lamb, this subdivision became a kind of subsequent broader definitions, which, in principle, relate to the digital economy any type of activity based on digital technologies, such as the simple definitions discussed at the beginning of this section and a number of other).

Since the object of this study is precisely the Russian economy, it is worthwhile to separate the concepts of “digital economy” and “digitalization”. **Digital economy** is understood as a set of activities based on digital technologies, as well as an infrastructure that ensures the operation of digital technologies. **Digitalization** is precisely the process of transition from a conventional (“analog”) economy to a digital one, that is, a digital transformation is taking place. This process should include not only changes in the tools, levers and policies at the state level, but also changes in the thinking of the people themselves.

New approach to companies' classification

Digital economy influences the business organizations – old types transfer new ones, consequently, there are a new classification of them.

As part of this study, the following divisions are proposed:

1. **Enterprises with a traditional way of life** - the business and assets of such an enterprise are presented in the analog, usual form. As a rule, such enterprises are engaged in manufacturing, logistics and other activities where it is necessary to attract a large number of tangible assets;

2. **Enterprises selling products exclusively through virtual channels** - such companies have material assets, but only in the form of finished products in warehouses and points of issue. They contact their consumer only through a virtual storefront - for example, selling books or phones online.

3. **Enterprises that develop online services** - for example, email and search services, social networks and more. Such companies are not tied to any material asset - they can change the office or the server company storing their data without stopping the activity. They develop services for which only the Internet is needed.

How business data enterprises should adapt to the conditions of the digital economy? If an enterprise has decided to fully or partially digitize the business, then a full digital transformation strategy should be developed. There is no opportunity to develop the same strategy for each type of companies, since it will depend on various current factors of the enterprise: size, turnover, applied technologies, business features, and more. However, you can track some common points that must be present in the new business-model in order for it to meet the requirements of the modern economy, in the future - digital.

Changes in business can include adding new processes, reducing old ones, and changing the distribution of business processes between business levels: core and supportive.

It is worth considering each type of enterprises separately - the analysis will allow to identify the necessary actions for digital transformation for each type.

1. Enterprises with a traditional way of life.

For enterprises of this type, digital transformation is a very complex, often painful process. The complex structure of the business and the value chain, the range of counterparties, internal logistics and other things all affect the complexity of designing the digital transformation strategy, causing great damage to the business if it is not correctly compiled and its assessment of its profitability is incorrect. Despite the need for analog assets, within the digital economy, such companies must actively use modern technologies as their infrastructure: equipment, communication systems, software products of a wide range from user software to ERP and CRM systems.

Digital transformation for this type of enterprise implies the implementation of the following principles:

- *Automation and simplification of business processes through the introduction of various systems and integration with external services.* The introduction of various types of systems such as CRM, ERP and others in an enterprise allows for better control of its activities without additional resources. And maintaining electronic document management and integration with various external services, for example, government agencies, will significantly reduce errors related to human factors.

- *Customization and customization of service.* Individual approach should be to each client: it is necessary to implement a relatively cheap (reliable) service, which is based on the creation of profiles and clusters of clients, behavioral patterns through the use of special algorithms and processing of large data arrays (big-data).

- *Flexible pricing.* There are algorithms according to which the cost of goods and services varies depending on the moment of their purchase (cinema, air tickets, hotels, seasonal goods), the history of the buyer (bonus systems, discounts on the check amount, cumulative discounts, individual incentive offers depending on the profile of the buyer), the composition of the check (special offers for related goods and services), etc. This allows you to smooth seasonality for some values, as well as attract more customers, build marketing policy of the enterprise;

- *High-quality logistics.* This becomes much more important than the location of the enterprise. This includes both the delivery of goods to the buyer, and the delivery of the client to the goods, for example, in a shopping center. Omnichannel becomes the most important element, that is, the mutual integration of disparate communication channels into a single system to ensure continuous communication with the client.

In addition to introducing new elements, for a digital transformation, an enterprise requires the redistribution of business processes across the enterprise levels, namely, the transfer of some of them from the main to the supporting. For example, logistics in some cases can be outsourced to a specialized company. Thus, the company removes a large amount of costs associated with the maintenance of vehicles: the funds themselves, staff, storage and so on.

The company, which seeks to confront modern challenges, is stuffed with digital technologies. Therefore, its entire information infrastructure should be assessed as part of the digital economy. Thus, enterprises that build and maintain this infrastructure, from server manufacturers to telecom operators, are part of the digital economy.

2. Enterprises selling products exclusively through virtual channels

It can be said that enterprises of this type are integrated into the digital economy, since the Internet is the main channel of their sales, where they generate revenue. Thus, the promotion and advertising channels of them are also virtual, digital. However, this does not mean that they have nothing to improve - so, not all companies adhere to the principles of flexible pricing and customer focus. Also, modern algorithms based on user actions, processing of large data arrays, allow sampling of goods. Logistics for this type of company is also one of the key elements.

3. Enterprises developing online services.

The number of business models of such companies is large and constantly supplemented by innovative start-ups. The most classic and familiar business models of such enterprises are:

- search engine (Google, Yandex);
- mail service (Mail, Hotmail.com);
- e-commerce aggregators;
- service aggregators (Uber, Airbnb, Booking.com, air ticket sales services);
- sites ads (Avito.ru., Yula);
- electronic media and information resources;
- social networks (Vkontakte, Odnoklassniki, Facebook);
- online games and mobile;
- innovative business-models;
- other small business-models (SMM-agencies, services for Internet distribution, input of digital codes of protection against bots).

Among the three types of enterprises, these are most integrated into the digital economy, their products are distributed and function only through the Internet, the use of new technologies in development is the competitive advantage of this business model relative to the rest.

This classification focuses on those types of organizations that are most sensitive to the digital transformation. This shows where the attention of researchers should be directed to when developing digitalization strategies.

Thus, it is possible to prepare an instruction for the introduction of a digital economy in an enterprise for each type of company.

Conclusion

It should be noted that the wide and ever-expanding distribution of digital technologies can soon radically change the landscape of the entire economy. The use of new technologies, customer focus, flexibility and transparency of the main processes - all this is a significant competitive advantage.

This article is devoted to the study of what types of enterprises exist in the modern economy, and what impact digitization has on them. As part of it, various approaches to the definition of “digital economy” and “digitalization” from the point of view of foreign and domestic sources were studied. It was revealed that for each type of enterprise it is necessary to use digital technologies, as well as the redistribution of business processes between the main and supporting business levels of the enterprise.

Thus, it was found that the most complex and time-consuming digital transformation process is for ordinary analogue enterprises with tangible non-digital assets, for example, shopping centers, industries and others.