

## DIGITAL TRANSFORMATION OF OPERATING MODELS OF BUSINESS ORGANIZATIONS UNDER THE INFLUENCE OF MODERN TECHNOLOGICAL TRENDS

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A priori today is the statement that maintaining the leadership position of modern enterprises in the post-industrial conditions of economic development is possible only on the basis of digital transformation of their operating and business models. These transformations are based on the concepts of Industry 4.0, Smart Manufacturing, Internet of Manufacturing, Digital Manufacturing, and others. Despite the diversity of the above-mentioned concepts, they are all combined with a single purpose of ensuring the permanent achievement of the desired economic results of business organizations' activities through modern technological trends, which create fundamentally new preconditions for creating and offering consumer value.

The relevance of the research is the critical digital divide between foreign and domestic enterprises, which threatens the latter not only losing competitive positions, but also with the risk of weakening their economic stability.

Despite the short period of actualization of the researched issue of digital transformations of operating models under the influence of modern technological trends, the number of publications on this subject is increasing rapidly. Thus, C. Perez<sup>58</sup> notes that modern technological developments fundamentally change the logic of achieving competitive advantages of an enterprise. Salim Ismail, Yuri van Geest and others emphasize that the digital transformation of the operating models stimulates the emergence of new players in the market and increases their flexibility<sup>59</sup>.

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<sup>58</sup> Перес К. (2011) Технологические революции и финансовый капитал: динамика пузырей и периодов процветания. – М.: Дело.

<sup>59</sup> Salim Ismail, Michael S. Malone, Yuri van Geest (2014) Exponential Organizations: Why new organizations are ten times better, faster, and cheaper than yours (and what to do about it) – A Singularity University Book.

The systematization of approaches to understanding the essence of digital transformation of operating models of enterprises (DTOME) makes it possible to highlight the following substantive emphases:

- 1) the scale of technology implementation: for example, *Boston Consulting Group* analysts define DTOME as the maximum use of the potential of modern technological trends in all aspects of business activity<sup>60</sup>;
- 2) the scale of changes that follows in Howard King's definition of DTOME as a large-scale transformation of operating activity that affects all value chain processes and impacts not only on the operating model change, but also on the infrastructure of the enterprise<sup>61</sup>;
- 3) the resulting constructive changes of the operating models influenced by modern technological trends: for example, scientists from the Massachusetts Institute of Technology and experts from the Global Center for Digital Business Transformation identify DTOME as a key factor in increasing enterprise productivity<sup>62</sup>;
- 4) The creative changes in top management performance: according to D. Terrar, DTOME is the process of the organization's transition to new ways of thinking, management style based on the use of mobile and other digital technologies to fully satisfy the interests of customers, suppliers and partners<sup>63</sup>.

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<sup>60</sup> Банке Барт Аналитический отчет BCG. [Электронный ресурс]. URL: <https://vlast.kz/corporation/24539-cifrovizacia-biznesa.html>.

<sup>61</sup> Вьюгина Д.М. (2016) Цифровые стратегии медиабизнеса в условиях изменяющегося медиапотребления // Медиаскоп. – № 4. [Электронный ресурс]. URL: <http://www.mediascope.ru/2233>.

<sup>62</sup> Отчет Глобального центра по цифровой трансформации бизнеса (2015): Digital Vortex. How Digital Disruption Is Redefining Industries. Отчет Массачусетского технологического института (2011): Digital Transformation: A Roadmap For Billion-Dollar Organizations.

<sup>63</sup> Terrar David What is Digital Transformation? Theagileelephant.com. [Электронный ресурс]. URL: <http://www.theagileelephant.com/what-is-digital-transformation>.

Generalizing the current state of scientific developments in the researched problem, in the digital transformation of the operating models, the author understands the management-initiated mental-cognitive process of fundamental operating processes improvement through the continuous introduction of digital technologies, which provides the desired long-term results for the organization.

It is the constant development of breakthrough technologies that determines the continuity of the DTOME process. It aims to create stable competitive advantages and a loyal network of stakeholders. And the technologies in these changes are only part of the success. The development of the company in the direction of intellectual organization, deepening the creativity in top management actions and ways of making management decisions are of paramount importance. Experts of the Digital Transformation Institute (*DTI*) consider the team approach to attracting staff in digital transformation, training in digital tools, and formation of modern corporate culture to be one of the main stages of DTOME.

Traditional operating models are static in nature and oriented towards slow progressive development. The rapid response to dynamic changes in the business environment in such a model is constrained by numerous barriers inherent in the very nature of this model:

- formalized processes, regulations and instructions, hierarchical management system, significant resource costs for internal control;

- complexity and inflexibility of traditional automated corporate systems;

- the established practice of innovation and change management, which is mainly grounded in the project methodology based on PMBoK (Project Management Body of Knowledge), which provides a clear fixation of technical tasks and numerous approvals.

Modern technological trends in digital technologies development are opening up new opportunities and offering new tools of artificial barriers of traditional business models. Digital initiatives are now rapidly expanding around the world in businesses of various economic activities. The World Economic Forum estimates that digitalization has a great potential for business and can

provide additional \$ 30 trillion revenue for the world economy by 2025. Despite the large-scale trend of digital transformations in the global space, unfortunately, these necessary changes are extremely slow in the post-Soviet space. This determines the objective need for further scientific developments in this direction, as well as their operational and practical implementation.

The author of the article shares V. Ryzhkov's views that the driver of the DTOME is a modern consumer and a change of communication culture<sup>64</sup>. But he believes that digital technology should be used to interact with all stakeholders, not just consumers, but suppliers in particular. Accordingly, DTOME should be based on a personalized approach, and modern technological trends create the preconditions for its implementation on the basis of four key technologies: cloud computing, artificial intelligence, big data, mobile applications (Fig. 1). Cloud technologies create prerequisites for business scaling, artificial intelligence — for interconnections identification; data analytics — for storing and processing a large array of multi-vector data, mobile applications — for improving the convenience of stakeholders and optimizing communications with them.

The synergistic effect of the above-mentioned technologies ensures an extremely important transition from multichannel to omnichannel<sup>65</sup>, which integrates different communication channels into a single permanent system: virtual / voice assistants, smartphones, chatbots, smart things, smart offices, websites, social networks, contact centers.

In addition to communication channels, it is an important information value to format the experience of stakeholder interaction based on the following components:

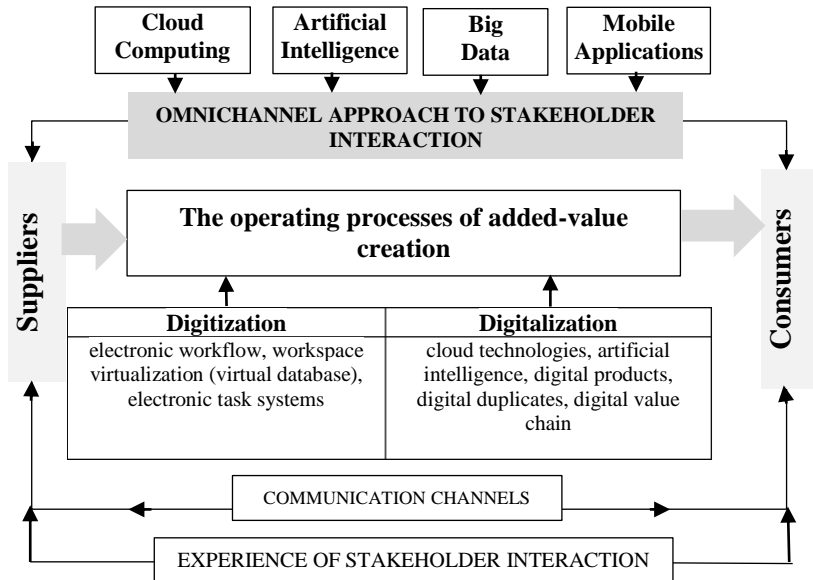
- establishing an emotional connection through an individual approach - personalization;

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<sup>64</sup> Рыжков В. Что такое digital-трансформация? Komanda-a.pro. [Электронный ресурс]. URL: <http://komanda-a.pro/blog/digital-transformation>.

<sup>65</sup> «omni» - це збірна форма зі значенням «все»; «омніканальність» інтегроване сприйняття стейхолдерами інформації про підприємство, його продукти / послуги за допомогою використання всіх каналів

- understanding the needs and personal circumstances of the stakeholder - empathy;
- minimizing the costs of the stakeholders - saving partner's resources;
- transformation of negative stakeholder's experience into positive - conflict management;
- the level of satisfaction of stakeholders with partnerships - meeting expectations;
- formation of stakeholders' trust to the enterprise - good faith.



**Figure 1. Logic and key elements of the digital transformation of the business operating model**

*Source: author formed*

It is through the omnichannel that a continuous connection between communication channels and stakeholder interaction experience is ensured. In view of the above, it can be stated that omnichannel eliminates the disadvantages of multichannel, which uses different channels, but in isolation and separately. The preservation and processing of information about interaction with the

stakeholders allows to increase the level of its personalization and to form a stable loyal base of stakeholders.

The omnichannel approach creates the prerequisites for the large-scale use of the tool for interaction with stakeholders as crowdsourcing. This makes it possible to mobilize the resource of the relationship in order to achieve the desired results of the enterprise's activities<sup>66</sup>. Crowdsourcing allows increasing the level of products / services consumer value of the enterprise by attracting customers in in product development, generation of marketing ideas. Digital technologies allow these actions to be implemented through social networks and other modern communication channels. This practice in European Union enterprises has already proved the suitability of involving customers in the development of goods and services. In addition, this approach reduces operating risk in the dynamic and unpredictable conditions of the external business environment. Regarding the interaction with suppliers, we note that in terms of DTOME it is advisable to build it on the basis of unified technological platforms, which creates conditions for the joint growth of companies and the formation of stable relationships. Blockchain and smart contracts are among the priority instruments.

In addition to the interaction with stakeholders, the DTOME also provides for the digitalization of value-added operating processes. It is worth noting that today in Ukraine there is a misconception about the digital transformation as the transfer of document flow and other routine operations online. In fact, these are examples of simple digitization, rather than digital transformation, which does not exclude digitization, but focuses on the priority of the digitalization of operating processes.

To eliminate terminological inconsistency, it is advisable to specify the essential meaning of the concepts of "digitization" and "digitalization". The first concept reflects the processes of transferring individual data, functions, tasks into an electronic format. Improving the effectiveness of operating processes of

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<sup>66</sup> Чижов С.Ф. (2015) Краудсорсинг в управлении проектами и российские реалии его применения. Белгородский экономический вестник. № 3(79). С. 95.

consumer value creating and offering involves the application of the following digitization components:

- Conversion to the electronic format of routine document processes using electronic signature capabilities;
- Electronic task-setting systems based on the integration of statistical information, enabling management actions to be optimized by synthesizing data from various management objects and identifying the best management practices for their replication;
- The virtualization of the workspace involves the grouping of all operational data in virtual databases, which makes it possible to integrate individual tasks for employees into a single format of a collective task, that informs each participant of the process about the work results.

Instead, digitalization processes form a fundamentally new level of information support for the operating processes of obtaining added value. Among digital tools of digitalization, it is advisable to focus on cloud technologies that allow transferring local, traditional ERP-systems into a cloud structure. It is worth mentioning that with the advent of the cloud technologies, they were not able to ensure the implementation of this solution, but their development creates new opportunities for increasing the operating sophistication of the enterprise on the basis of digital technologies. Thus, the ERP-system based on a cloud structure has a greater functionality and requires lower costs compared to local counterparts. In real time, it allows tracking of processes stages, logistics routes, etc. Already today, the experience of the world's leading companies proves that the transition to cloud ERP-systems saves costs by 25-50% compared to the local system.

One of the priority digital tools of the value-added operating processes is the introduction and development of ECM-system<sup>67</sup>, which allows the processing of unstructured information based on artificial intelligence without human intervention. Thus, artificial

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<sup>67</sup> *Enterprise content management (ECM)* – управління корпоративним контентом, а також його зберігання, обробка і трансляція в рамках організації. ECM-система - програмне забезпечення для управління корпоративним контентом

intelligence makes it possible to structure multivector information to form a statistical basis of the operating processes management. In general, *Gartner* analysts have identified ECM as a tool for supporting the life cycle of unstructured information of various formats and types based on artificial intelligence. The use of this tool allows solving two sets of issues: the digitalization of different databases and the digitalization of products' interaction, operating processes' and production lines'.

The creation of Digital Twins - digital copies of equipment, operating processes, value chain - is also important. The main advantages of digital analogues for business units are:

- reduction of production costs and introduction of its new types by digitalization of its prototypes;
- selection of alternative management solutions based on modeling of different situations and scenarios in a virtual environment;
- reduction in the time of placing a new product on the market on the basis of previous passing of the product's life cycle in the virtual environment;
- optimization of diagnostic service by selecting its options in advance on the basis of virtual simulation;
- remote control of digital copies and synthesis of information to gain relevant experience;
- maximization of the efficiency of routine operations and processes, which saves time and resources for the development of new and optimization of existing business areas;
- transformation of information into a key asset for the formation of sustainable competitive advantages.

It is worth emphasizing that the digital information of operating models should take place in a systematic manner, since the chaotic implementation of some elements of modern digital technological trends is unable to provide the desired results. Summarizing the global experience, there are two approaches to the implementation of the DTOME process.

The first approach can be characterized as «company - digital technologies». It presupposes the analysis of the enterprise's activity and identification of «bottlenecks» requiring immediate equalization.



This approach is characterized by rational criteria for evaluating the results of digital transformation in the current period and the inclusion of these processes in the company's strategic development plan.

According to the second approach, a range of priority digital technologies is selected firstly, which are more appropriate to begin the transformation of the enterprise's operating model. In this case, the company itself is considered as an object of the implementation of digital technologies. Accordingly, this approach is a sequence of actions according to the scheme "technology - company". The second approach is more appropriate to use with the advent of new modifications of digital technologies that have not yet proved themselves in practice. The algorithm for implementing a particular approach to digital transformation by alternative approaches is given in Table 1.

We believe that the "company-technology" approach is more appropriate in domestic realities. In this approach, the digital transformation of a business is seen as a priori element of a company's strategic management and a key tool for improving its performance efficiency. The technology-company approach should be applied with well-established digital operating models to test the latest practices and technologies.

In general, it should be noted that the enterprise's digital transformation of operating models has the following characteristics and advantages for the business entity:

- increases the level of transparency of processes both within the enterprise and in its relations with a wide range of stakeholders through the formation and processing of a large array of data;
- allows you to transfer all physical assets into an integrated digital system of value chains;
- raises the level of corporate culture and stimulates the development of digital literacy of employees and increase the level of their professional competencies;
- creates the prerequisites for structural changes not through the local introduction of innovative technologies, but through the logical integration of digital technologies in order to achieve the desired results of the company's activities;

- expands the possibilities of systematic assessment of consumer behavior on the basis of digitalization tools;

**Table 1 - Stages of alternative digital transformation of the enterprise's operating model**

<b>Option 1: "enterprise - technology" approach</b>	<b>Option 2: "technology - enterprise" approach</b>
Analysis of the existing operating model of the enterprise with the identification of "bottlenecks" of the value chain	Analysis of the best available technologies and opportunities for their implementation in practice
Diagnosis of possible ways to optimize the processes of the value chain	Division of the best available technologies by the level of capital intensity
Research of existing technologies that contribute to solving the problem and avoiding unnecessary stages of value creation	Diagnosis of operational processes in order to implement the selected best available technologies
Determination of the economic feasibility of optimizing operating processes through the introduction of new technologies and the elimination of unnecessary stages	Determining the economic effect of the introduction of the best available technologies: - for non-capital-intensive technologies: pilot project implementation; - for capital-intensive technologies: calculation of the economic effect from using a new technology
Implementation and testing: 1) of new technologies; 2) of a simplified value chain in the pilot mode	
Analysis of the results of the digital transformation implementation phases, adjustments, gradual scaling	

Source: author formed on the basis of<sup>68</sup>

<sup>68</sup> Chesbrough H. (2006) Open Innovation: The New Imperative for Creating and Profiting from Tech-nology. Harvard Business Press.

Mutaz M. Al-Debei, Ramzi El-Haddadeh, David Avison (2008) Defining the Business Model in the New World of Digital Business. Brunel University London, P. 7-8.

Rozeia Mustafa, H. Werthner (2011) Business Models and Business Strategy – Phenomenon of Explicitness. International Journal of Global Business & Competitiveness, January

- strengthening network interaction and partnerships, increasing conditions for joint activities and permanent exchange of knowledge;
- increasing the flexibility of operational processes to create added value, which expands the possibilities of their operational adjustment.

Summarizing the results of the research, note that modern business in the new digital world involves a complete rethinking of traditional operating models. Today, the digitalization of the enterprise is a catalyst for its development and a prerequisite for achieving sustainable competitive positions and desired target results in the industry market.

The logic of transformation of domestic enterprises` of operating models should be based on two key blocks: 1) digitalization of relationships with key stakeholders; 2) digitalization of the operating processes of adding value. The first block is aimed primarily at suppliers and consumers and involves the use of digital interaction channels and digital processing of stakeholder experiences as a prerequisite for objective management adjustments. The use of the tools of modern technological trends ensures the transition in partnership relations from multi-channel to omnichannel, which not only increases the informational value of interaction, but also contributes to building sustainable partner networks and client loyalty. The second block involves both the digitization of operational processes of value added and large-scale use of digital tools, which allows you to significantly optimize costs and ensure the efficiency of management decisions.

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