

CHANGE MANAGEMENT IN THE DIGITAL AGE: THE PERSPECTIVES OF DEVELOPMENT

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Abstract: *The modern world is full of unpredictability and risks. Until recently, change management models could develop an approach that is adequate for business for several years ahead without the need for significant changes later. Today, such an approach is practically impossible, given the dynamism and complexity of the external environment. Today's environment is often characterized by one concept - digitalization. In this article, we will try to characterize the features of the modern business environment and outline trends in the development of change management in uncertain and unpredictable operating conditions, will define the problems that stand in the way of transformation, as well as clarify the factors that should contribute to the successful functioning of modern organizations. The research methods used in writing the work were: the method of analysis, synthesis of scientific literature, analysis of statistical data, as well as a study conducted by the author on a number of Moldovan enterprises in order to determine the prospects for the development of change management in the Republic of Moldova.*

Keywords: *transformations, digitalization, changes, behavior model, uncertainty, business model, perspectives, change management*

JEL Code: *M19, O31, O33*

Introduction

Every day we are witnessing significant changes that affect the world of business. These changes are characterized by the highest speed, often unpredictability, and poor controllability. A natural question for managers is, first of all, how to survive in an era of unpredictability. To develop a change management model adequate to the prevailing conditions, it is necessary to penetrate into the depths of the ongoing changes.

So, one of the most important factors that determine the scale and complexity of the ongoing processes is the process of digitalization, which, along with such processes as the spread of artificial intelligence, the Internet of Things, Big Data, robotics and other cardinal components, are deeply penetrating into our lives, changing the way of existence and reorienting both the ordinary life of a person and the world of business (Paschek, Luminosu, & Ocakci, 2022). In such conditions, it is extremely difficult for a manager to navigate, because all those business models that have been relevant for a long time do not work today, and even vice versa, slow down development processes, leaving companies beyond the competitive edge.

The aim of the work is to clarify the features of the development of the modern business environment, identify the problems of the functioning of enterprises in the current conditions and determine the prospects for the development of change management in the era of

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digitalization. The work includes several sections of the study, with the help of which it was possible to realize the goal.

Firstly, a review of scientific research in the field of change management and digitalization, *secondly*, the definition of global trends in the development of enterprises in the era of digitalization, while studying statistical data, *thirdly*, a study of the features of the development of enterprises in the Republic of Moldova in the modern era and the attitude of entrepreneurs to the process of digitalization. In conclusion, conclusions and proposals are presented in the field of designating the prospects for the development of change management for enterprises in the Republic of Moldova.

1. Literature review

To clarify the concept of “digitalization”, let us turn to the origins of these processes. Best-selling authors of the new era of business development, Eric Brynjolfsson and Andrew McAfee believe that the “Second Machine Age” took place in two stages.

The first is related to the advent of digital technologies, when they also led to a fairly serious jump in productivity, and most of the routine processes began to be processed using technology. Thus, the authors date the emergence of the first wave of digitalization to the 1990s (Brynjolfsson & McAfee, 2017).

The second stage is much more difficult to identify. The authors believe that it is consistent with changes that have become akin to science fiction, like unmanned vehicles and the spread of Smartphone’s to a large part of the world population, which corresponded to the communication and sensor characteristics of devices that once seemed only the fantasy of futuristic authors. Thus, scientists argue that the second stage of the new era is significantly different from the first (Brynjolfsson & McAfee, 2017).

In addition, machines are not only capable of executing algorithms and instructions that were originally designed by the authors - programmers, but have recently become more and more “self-sufficient”, which greatly expands our understanding of the capabilities of machine devices. This era has contributed to the development of "total interaction" between most people around the world, which gave them access to a huge amount of knowledge.

Naturally, a new wave in the process of communication, knowledge acquisition, interpretation of information, has made a serious contribution to business development. The main routine processes that need to be performed in accordance with a certain algorithm on a daily basis began to be replaced by machine ones, and programs that automate these processes become integrated, systemic.

Thus, human labor is gradually being replaced by machine labor. Here, the fear of many researchers regarding the rapidly impending danger of mass unemployment is obvious, because replacing a person with a computer not only speeds up the process, but also makes it better, elimination of the appearance of so-called "human errors" caused by laziness, inattention, selfish motives, etc.

At the same time, many scientists are inclined to the importance of the "social or human approach" in the process of activity, linking exclusivity human thinking with non-

algorithm, non-triviality, sometimes unpredictability, sensitivity, ability to make decisions in crisis situations, etc. (Hammer & Champy, 2001; Drucker, 2009)

For example, the authors of the well-known concept of business process reengineering, Hammer and Champy, who proclaimed a new "era" in the business world in the early 1990s, calling it a "revolution", unambiguously affirm the paramount importance of the human factor in all revolutionary transformations. Moreover, they consider the technical re-equipment of the company's business processes without their proper rethinking to be one of the main mistakes of transformations. Thus, scientists prove the need for an initial restructuring of the management system, and then informatization or digitalization.

In addition, the authors pay great attention to the social component of the transformations, giving a certain place in their fundamentally new organization model, called the diamond of reengineering in the form of beliefs and values, which, invariably, must change with the corresponding transformations of business processes, work and structures, and the control system. (Hammer & Champy, 2001)

The well-known researcher Klaus Schwab, the author of the term Fourth Industrial Revolution, founder and chairman of the World Economic Forum in Davos, speaks of the process of digitalization of society as an integral part of the transformational flows that are taking place today and influencing the formation of the future. He emphasizes that "the future consequences of technological change depend on us" (Schwab, 2017). Schwab believes that today's processes are "modern technologies completely change the established way of life - from business actors, business models, to the final product and consumer preferences. Using new technological opportunities, companies will be able to create value for the client and the whole society in a different way." The scientist believes that in the near future, the latest technologies will completely change today's world - from the mechanisms for the production of goods and services, to tools for communication, work and perception of the world around. (Schwab, 2018). It is important to note that, according to the author, the further development of technology "at our disposal", that is, it depends entirely on the participation of everyone in the discussion of the ways of developing technologies that affect our lives.

An interesting approach is taken by the entrepreneur and inventor, Thomas Siebel, who has devoted his research to digital transformation. He writes that in the near future, 70% of existing companies and state apparatuses will attempt digital transformation, but only 20% of them will be successful. New technological business players are taking the place of "most influential companies", this is confirmed by statistics, according to which, since 2000, 52% of companies from the Forbes list have ceased to exist for various reasons: some went bankrupt, others merged with stronger business players. (Siebel, 2019). Siebel identifies four dominant factors: elastic cloud computing, big data, artificial intelligence and the Internet of things, the symbiosis of which will radically change the modus operandi of governments and companies. The use of these technologies provides digital transformation, and as a result, a multiple increase in productivity and quality of life (Siebel, 2019).

All of the above studies boil down to the fact that during digital transformation, no industry remains indifferent, in addition, given the organizational aspect, we note that this process will affect all aspects of the activities of organizations. Absolutely all researchers

focused on digitalization and digital transformation converge to an unambiguous conclusion: in order to survive, companies need to change, to be proactive in making decisions.

2. Data and Methodology

Digitalization today is a topic that interests almost everyone:

- companies in order to gain competitive advantages,
- researchers, due to the penetration of information technologies into absolutely all spheres of life and activity,
- teachers, taking into account emerging trends, it is necessary to update approaches and provide up-to-date knowledge and skills in the context of the process of digitalization of society,
- lawyers are interested in digitalization, taking into account the issues of legal protection of the protection of technologies, innovations,
- ordinary people - in order to adapt to the society of the future and occupy their niche, both in business and in everyday life.

As noted in the introduction, the purpose of this study is to develop recommendations in the field of organizational change management, taking into account the digitalization process. Therefore, we analyze data from various studies regarding the activities of business organizations and the problems that stand in the way of business digitalization.

For this purpose, a number of methods were used:

- the method of selective study of statistical data on a specific issue regarding the features of digitalization in modern organizations;
- comparative analysis, when comparing the features of digitalization in small and large companies;
- the deduction method - when we transform global trends into problems and perceptions of digitalization by Moldovan enterprises;
- methods of sociological research. namely, the method of questioning and analyzing information.

2.1. Benefits and areas of digitalization in modern organizations

An analysis of the fundamental literature showed the importance and necessity of digital transformation in all companies, regardless of industry, type of activity and size. But this process is not uniform across industries. Let's use the data of the study McKinsey & Company about the main areas in which companies are most implementing a digitalization strategy (Fig.1).

As shown in the diagram, business organizations give preference in the process of digitalization of marketing activities and distribution, other areas are digitized much less - the second most important area - products and services are digitized half as much. Moreover, such important aspects of activity as the digitalization of business processes and the creation of digital eco-systems are far behind the maximum value.

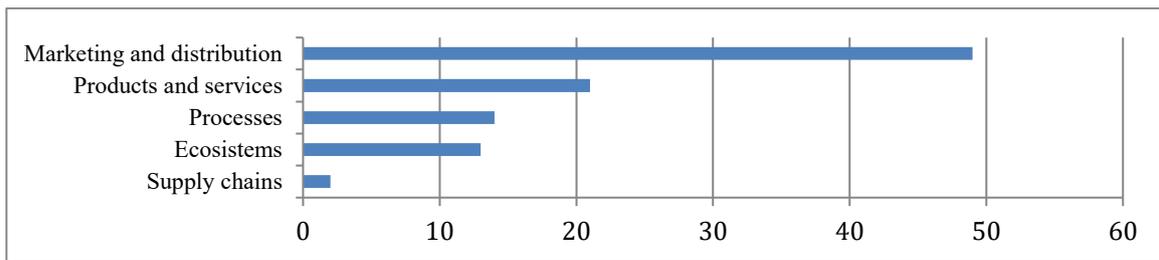


Figure 1. The main areas of implementation of the digitalization strategy in the company (in % of the total number of respondents)

Source: McKinsey Digital, (2020). Where are companies are focusing their forward-looking digital strategies? [White paper]. <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-case-for-digital-reinvention>

In this context, it is important to note the understanding of the importance and meaning of digitalization in organizations. At first glance, such advantages as reducing the time for implementing a business process, and the associated cost reduction and improving the quality of a product or service, in many cases increasing product awareness, entering new markets, etc. seem obvious.

In figure 2, we present the most important benefits from the introduction of the digitalization process, given in Digital Transformation Survey: Creating Products and Services in a Digital World. In this study, respondents were asked to choose the top three benefits that come with the process of digitalization in their organizations.

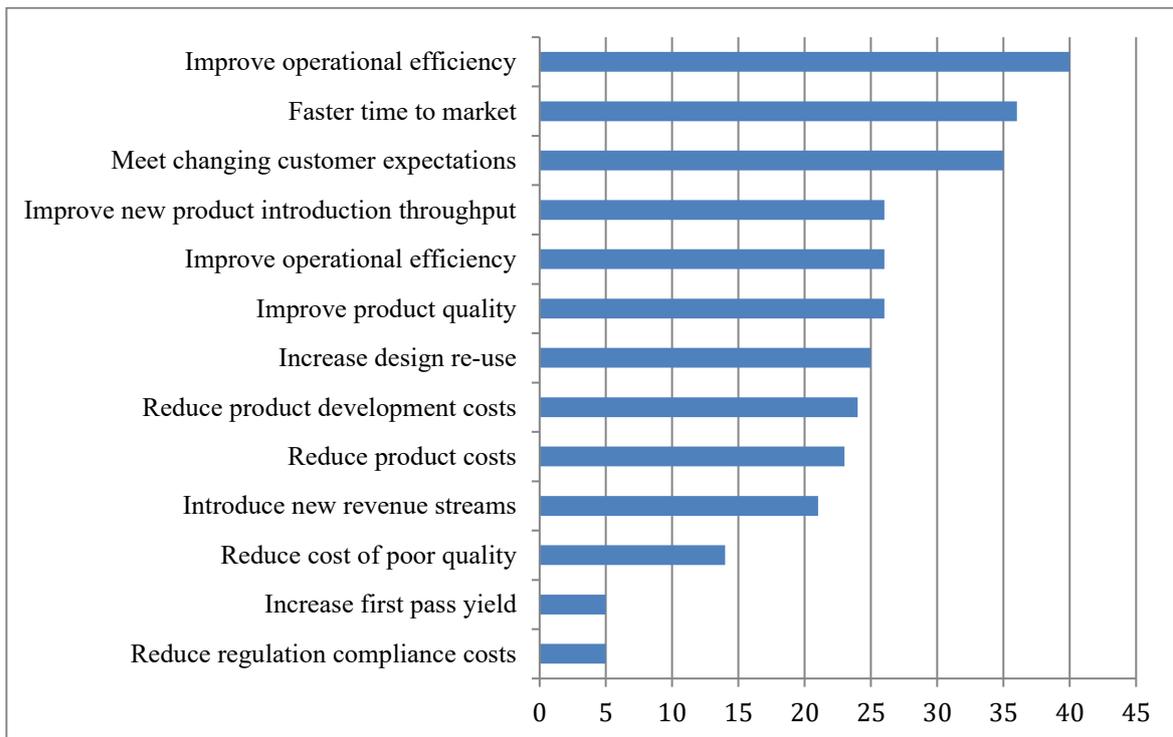


Figure 2. The main advantages of companies implementing digital transformation according to employees of enterprises

Source: Digital transformation Survey. (2022) [White paper] https://www.ptc.com/media/Files/PDFs/PLM/Digital_Transformation_Survey_

The diagram shows the benefits are much greater than the obvious ones. For example, indicators such as: improve new product introduction throughput, increase design re-use, increase first pass yield, which, perhaps, are not so obvious, but at the same time, play a huge role in the organizational structure, and accordingly, directly or indirectly, increase the level of financial stability and competitiveness of enterprises.

2.2. Main challenges and problems of digitalization implementation

In addition to the obvious priorities of companies implementing digitalization, there are a large number of problems that are associated both with purely managerial problems, for example, the resistance of management personnel and performers to change, and general problems - insufficient funding, unwillingness of external parties to take part in transformations, lack of a regulatory and protective base for such transformations.

Here are some statistics that point to the main challenges companies are facing during the digital transformation.

Here is the data of Altimeter Group, a company that is conducting digital transformation, of significant changes, such as: increase in market share, attractiveness for customers, increase in income, staff satisfaction, but at the same time, most of the companies meet with similar labor qualities. Moreover, it should be taken into account that regardless of the size of the business, there is a problem of approximate cause.

Table 1. The most significant challenges faced by enterprises implementing digital business transformation - depending on the number of employed employees (According to staff estimates)

Company with up to 100 employees	Company with more than 5000 employees
Lack of Experience to Lead Digitization Initiatives	Inconsistency of Experience in Carrying Out Digitalization
Staff Resistance	Difficulties associated with the organizational structure of the company
Lack of a Comprehensive Strategic Approach to Digitalization	No Overarching Strategy for Digitalization
Insufficient Support from Business Partners	Technical Difficulties in Carrying out Digitalization
Limited Budget	Employee Pushback

Source: *Biggest Barriers To Digital Transformation and How to Overcome Them.* (2022) <https://www.jabil.com/blog/overcoming-the-top-digital-transformation-challenges.html>

Thus, a survey of employees of various companies from around the world led to an interesting conclusion: almost none of the employees named the problem associated with the inaccessibility or underdevelopment of technology, but the majority of respondents named mainly internal problems associated with the resistance of the staff, the inadequacy of strategies that support digitalization, limited budget, etc.

Table 1 shows the problems associated with numerous cases of digitalization of the business of companies identified up to 100 employees and from 5,000 or more. As it is not difficult to notice that the difference between the problems is not significant, but still there. Thus, the second most important problem in large companies is the lack of adaptability, or

the limited nature of the organizational structure, which is not typical of small companies due to their much greater adaptability. While the problems of small enterprises are the lack of financial resources for the implementation of transformations and a large dependence on partners, which may not always be favorable. In both cases, staff emphasize the importance of a comprehensive change strategy and the problems associated with a lack of systematic strategy, as well as a lack of experience in this kind of change.

Let's take a look at the data from another study presented by the site www.financesonline.com regarding who is slowing down or resisting digitalization in organizations around the world.

So, the statistics show that the top management personnel have the greatest influence on the process of inhibiting the transformations associated with digitalization (Fig.3). As is known from the theory of change management, all strategic changes are determined at the level of top management, on which the company's vision, mission and organizational behavior depend. Consequently, one of the main goals of the company in a turbulent external environment is to change the perception of outgoing managers and a favorable attitude towards transformational changes, which is vital for modern companies.

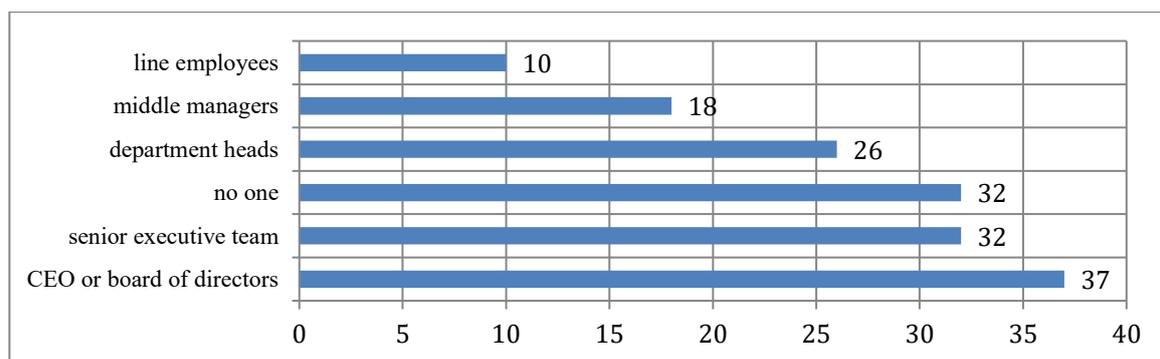


Figure 3. The main constraints in the process of digital transformation

Source: 72 Vital Digital Transformation Statistics: 2021/2022 Spending, Adoption, Analysis & Data, <https://financesonline.com/digital-transformation-statistics/>

Next in importance in descending order are: senior executive team, department heads and middle managers. Which once again proves the importance in the decision-making process regarding transformational changes in the field of digitalization of the managerial staff at all levels and once again confirms the need to develop a management model for organizational changes, taking into account all levels of management.

2.3. The most significant problems of digital transformation at the enterprises of the Republic of Moldova

In continuation of the study of the problems of transformation associated with digitalization, we conducted a study of 45 enterprises registered on the territory of the Republic of Moldova. The study was conducted in the period January-February 2022 as part of writing a post-doctoral thesis "Creating the organizational change management model for small and medium enterprises through the challenges of Industrialization 4.0", nr. 22.00208.0807.10/PD I.

As it is widely known, digitalization is one of the most important provocations associated with the process of Industrialization 4.0, therefore, it is logical to talk about the problems of digitalization in the context of this study. 97.5% of enterprises operated in the previous year 2021, 77.5% of companies are located on the territory of the Chisinau municipality, in other regions of the central part of the republic - 5%, in the northern part of the Republic of Moldova -5%, in other regions, including the zone of the unrecognized Transnistrian Republic - 14.5%. The main part of companies has been operating on the market for 5-10 years - this is 30% of respondents, 25% of enterprises have been operating for 20-30 years, and 25% for up to 5 years. Small businesses - for 47.5%, with 27.5% having over 500 employees.

When asked about the importance of introducing digitalization in Moldovan enterprises, on a 10-point scale, the answers of the respondents were distributed as follows (Fig. 4)

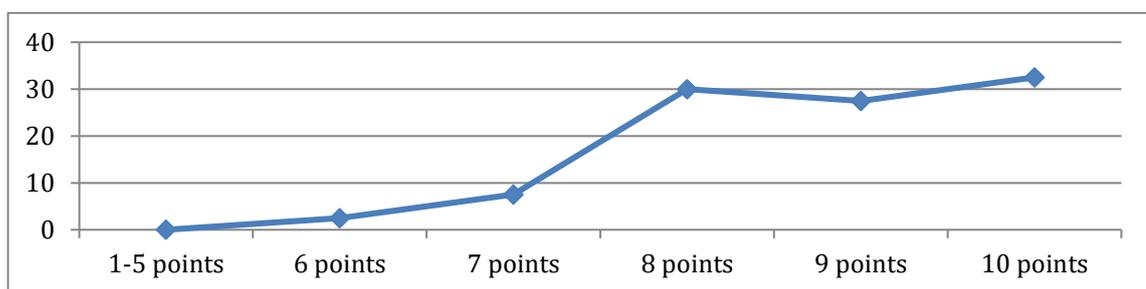


Figure 4. Scale for assessing the importance of digitalization for existing enterprises in the Republic of Moldova (according to respondents)

Source: Elaborated by author based on research results

The diagram shows that the largest number of results corresponds to a score of 10 points, which indicates an understanding of the importance of digitalization in the enterprises under study. In addition, no one chose the interval from 1 to 5 points. The main scores are distributed between the criteria in 8-10 points.

Next, we present the main problems associated with the process of digital transformation at enterprises in the Republic of Moldova. The problems presented had to be rated in order of increasing severity - from insignificant to very significant. (Fig.5)

The responses received clearly characterize the position of the respondents regarding the main problems, facing enterprises in the period of transformational changes. Obviously, in the opinion of the respondents, almost all of the listed problems are significant or very significant for enterprises in the process of upcoming changes. The most significant are weak or insufficient staff motivation, lack of cooperation with business partners, lack of specialized knowledge of company management, as well as insufficiently adaptive, correct approach to leadership. Among the least significant problems, according to respondents, is the lack of necessary state support, which means that employees either believes that digitalization should be carried out in-house by the enterprise organization, or in their opinion, state support is sufficient for this process at this stage. As for the problem, the shortage of IT specialists was also given, in our opinion, optimistic estimates, which most likely means that there is no shortage of highly specialized IT specialists, or it is not so significant.

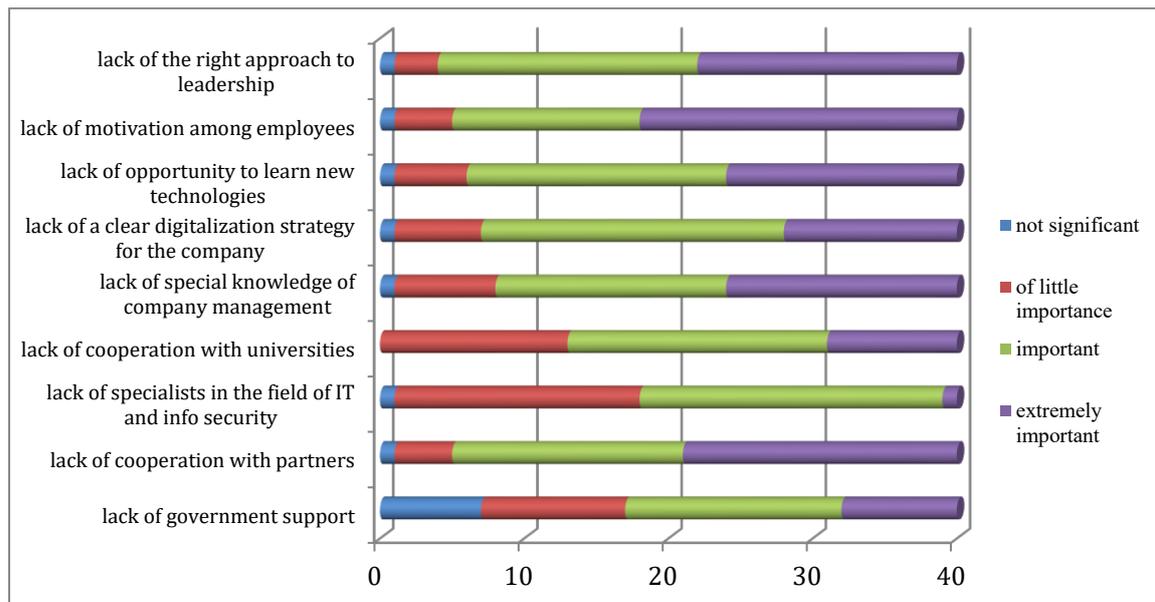


Figure 5. The main challenges facing Moldovan businesses related to digitalization changes (according to respondents)

Source: Elaborated by author based on research results

The insufficiently high level of awareness of the need for cooperation with universities can also be noted from the presented diagram. As you know, one of the surest ways to promote innovation is the close cooperation of enterprises with universities in order to mutually supplement universities with the latest knowledge, skills, exchange of students, while enterprises provide jobs, places for practice, the possibility of conducting experimental and research activities.

The following are answers to the question regarding the period of time during which the respondent's enterprise will go through the process of digital transformation (Fig.6)

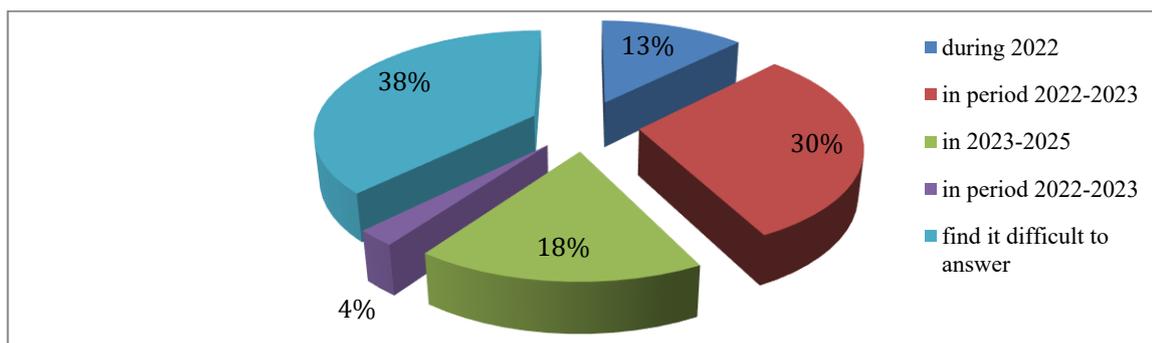


Figure 6. Answers to the question regarding the expected period of the transition to digitalization process (according to the respondents)

Source: Elaborated by author based on research results

The majority of respondents, or 38%, find it difficult to answer this question, which presumably indicates a lack of strategic vision for the company in the field of digitalization. Or employees of companies are not familiar with the strategic plans that are developed by senior management, which is also an omission in the transformation process. 3% of respondents do not see a real possibility (or need) for digital transformation, which, in our opinion, is disastrous for

these enterprises. At the same time, a relatively large part claims that the digital transformation of companies will be carried out during the current year (14%) and 30% - during the next year. Thus, despite the partially high uncertainty, some enterprises of the Republic of Moldova have already initiated, or are going to do so in the near future.

Interesting is the opinion of the respondents regarding whether all companies will be affected by the digital transformation process - a relatively large number of respondents answered negatively - 25%. In addition to this question, respondents who answered positively, namely (75%), were asked over what period they think these changes will take place. Thus, half of the respondents gave a very optimistic answer that these changes will occur in the period 2022-2025, 40% - until 2030 and 10% - until 2025. And regarding the question whether the respondents believe that the digital transformation will bring additional competitive advantages to businesses, 92.5% of the employees of Moldovan enterprises answered in the affirmative.

Summing up the results of this pilot study, it can be noted with confidence that a large number of employees and enterprises in general note the importance and necessity of digital transformation, at the same time, a large number have either not asked the question about the need for transformation, or do not realize their paramount importance. In addition, there are a large number of problems facing enterprises embarking on the path of such transformations. This is convincingly evidenced by studies conducted by foreign companies, as well as the results of this study. Despite these problems, many companies around the world are making such a transition, realizing that the future lies with the latest technologies, and the sooner this process starts, the more chances the company has to win in the competition.

3. The Model and Findings

So, the main question of this study is what is the future of change management, given the complex and unpredictable external environment? The answer cannot be unambiguous. Every day we are exposed to unforeseen factors that cannot be taken into account in advance in the strategy of the enterprise. The answer to this question can be an adaptive change model, which has the ability to change as needed and update the relevant components. An important note: when forming the model, it is necessary to take into account the understanding of the internal environment of the organization as a socio-technical system. Thus, when formulating the elements of this system, it is imperative to pay attention to both the technical and technological component, which, of course, changes the elements of the system: business processes, work tasks, organizational structure, and the social component: organizational culture, relationship system, approach to effective leadership.

So, as can be seen from the presented data, most of the identified problems are related to management functions. In particular, the *planning* of transformational processes is associated with a change in the mission, vision of the company, which must radically restructure its focus. The *organization* will also be significantly changed, given the new principle of operation, often companies need to turn around 180 degrees, move from a classical management structure to a more adaptive command structure. This is often chosen by Agile teams, that is, cross-functional teams that use Agile principles by implementing an agile framework like Scrum or Kanban. The function of

motivation is of paramount importance. Firstly, because any change should be carried out with due support, financial, moral, and spiritual (if we are talking, for example, about the features of organizational culture, which, accordingly, will also change in the process of digitalization). Accordingly, the staff must initially imagine what effects await him as a result of the relevant changes, must support them and be ready for changes associated with the work process. And of course, the control function is undergoing dramatic changes. Firstly, in the process of digitalization, all processes become transparent, so the control over the final or intermediate results is facilitated and improved. Secondly, by operating on the basis of cross-functional teams, there is more trust and interchangeability between employees than has been the case so far. Consequently, the need for complete and continuous control by itself disappears.

In addition to functions, the connecting processes in management are also changing - these are communications and the decision-making process. It is obvious that the communication process is significantly reduced in time, channels are modified, other communication barriers appear that are inherent in digital reality. The decision-making process is also accelerated due to, in addition to the application of new technologies and a fundamental change in the organizational structure and the introduction of teamwork.

One of the latest surveys by McKinsey showed that, especially after the Covid-19 pandemic, senior executives began to sharply feel the need for digitalization and rethinking of business processes and, accordingly, the systems that have been operating so far. Only 11% of all survey participants believe that current business models will remain economically viable until 2023, while 64% believe that their companies urgently need to digitalize their business in order to survive and maintain their positions. It should be noted that, according to the estimates of the same company, 70% of digital transformation projects fail. Interestingly, the main reasons are not the latest technologies and innovations, but an unfinished change strategy.

Table 2. Aspects of digital transformation

Type of transformation	A brief description
Transformation of business processes	Changing work operations, combining them into a common process with a logical representation of the sequence of their implementation, a business process is usually built with a focus on a specific client, with clarification of its specific features. The changed business process is digitized, which significantly improves the quality and significantly reduces all costs
Transformation of business models	Is aimed at restructuring work processes in a complex, the main goal is to rebuild the entire system of the company, that is, to review all its elements and replace them with new ones in order to increase attractiveness and value for customers
Transformation of corporate culture	Changing the values, vision, mission of the company, rules and procedures for making decisions, relationships, both with internal elements of the system (performers, managers, teams) and with external ones (suppliers, consumers, intermediaries)

Source: Elaborated by author

So, clarifying the elements of the change model in the Modern business environment, we can single out its main components: business processes that must first go through the

process of rethinking and then digitalization, employees (with all key components), learning cross-functional teams, a certain approach to leadership, which will be accompanied by the modified management functions mentioned above.

Experts distinguish three aspects of digital transformation: transformation of business processes, transformation of business models and transformation of corporate culture. Briefly reveal the features of each (Table 2).

In our opinion, to achieve success in transformation, the company must cover all of these areas, giving a special place to cultural transformation. If we can figuratively imagine the model of an ideal transition, then we can single out the following - the transformation of the entire business system will occur on the basis of a rethinking of all 100% of business processes, the connecting element, or the framework of all transformations, will be the corporate culture, which will include effective leadership and cross-border - functional commands.

Conclusions

So, summing up the above, let's focus on the main conclusion: today we are experiencing the processes of revolutionary transformations that will affect all spheres of life, the transformation is unconditional, firms are faced with processes that are difficult to predict, plan and manage. Changes are characterized by scale, rethinking of functioning and significant reorientation of the management system.

It should be noted that it is favorable that the representatives of Moldovan enterprises understand the importance of digitalization and related transformations, as evidenced by the assessment of the majority of interviewed personnel - 8-9 points on a ten-point scale. Given the primary importance of the managerial component in the process of transformation, we note that the respondents identified among the most important problems - lack of sufficient motivation - about 80%, insufficient cooperation with partners - 70%, insufficient or incorrect implementation of the leadership style - 70% and lack of specialists in the field digitalization at Moldovan enterprises-80%. Regarding the approximate transition to a new mode of activity, taking into account the peculiarities of digitalization, the answers of the respondents were distributed in the direction of uncertainty - 38% answered that they found it difficult to answer, which indicates the absence of a clear strategy for change today. At the same time, more optimistic forecasts regarding the development strategy are given by 30% of the respondents, believing that digitalization will take place in their companies over the next two years and 18% of the staff, who believe that the transformation will take place before 2025.

These studies judge the ambiguity of understanding, approaches and attitudes towards the transformation processes associated with digitalization.

The scientific significance of the work lies in generalizing the conceptual framework that links the processes of Industrialization 4.0, reengineering and digitalization, in considering the directions for further development of management science, taking into account new challenges, in identifying the problems that modern enterprises face, as well as in clarifying the constituent elements of the change model, which will be the subject of substantiation in subsequent studies.

Management in the modern business environment must have a broad-minded, systematic and critical thinking. Abandoning industrial and post-industrial age thinking and reorienting towards information age approaches will help companies survive in this complex and uncertain environment.

The prospects for change management in the transformation model should be based on an integrated approach that includes techno components: digitalization of processes and systems, the use of Big data, the Internet of things, artificial intelligence, as well as "soft" components related to corporate culture, relationships and leadership. To avoid the risks associated with the failure of the project, all these components must be given due attention. Given the research of the mentioned authors in the work, the world is on the verge of great transformations, associated with the processes of Industrialization 4.0, which directly leads to the adoption of digitalization as the basis of a new world system in which all institutions and spheres work in a new way. Naturally, here there is a need to create a system of state regulation and legislation in the field of digitalization.

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