

# THE DIGITAL TRANSFORMATION OF THE SOCIO-ECONOMIC SYSTEM

## TRANSFORMAREA DIGITALĂ A SISTEMULUI SOCIO-ECONOMIC

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### TRANSFORMATION OF THE BUSINESS MODEL AS A RESPONSE OF THE ORGANIZATIONS OF THE REPUBLIC OF MOLDOVA TO THE CONDITIONS OF INDUSTRIALIZATION 4.0

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**ABSTRACT.** *The relevance of the research topic is of heightened interest due to the accelerating changes taking place in the world. Changes in the external environment have a significant impact on the transformations taking place in the business models of organizations. Moldovan SMEs face a significant choice: to transform their activities, or not. Refusing to change could mean a loss of competitiveness and financial sustainability for these enterprises. The purpose of the study is to justify the need for transformational changes in business models under the influence of changes caused by the processes of Industrialization 4.0. The methods of this study include: the method of analysis of the conceptual framework, synthesis of the resulting evidence base and justification of the relevant conclusions. The paper also describes the results of empirical research conducted in the period January-April 2023, which was carried out using questionnaires, observation and interviewing. The main results of the study are: the justification of theoretical conclusions, the formation of elements of the business model undergoing transformation, conclusions about the specifics of change in the enterprises of the Republic of Moldova.*

**KEYWORDS:** *The Fourth Industrial Revolution, Industrialization 4.0, Transformational Change, Business Model, Change Management, Digitalization, Innovation, Platforms, Transformation Process, SMEs.*

**JEL CLASSIFICATION:** *M130, M15, O31, O32*

## INTRODUCTION

The rapidly changing external environment under the influence of the Fourth Industrial Revolution implies not only constant innovation, but also more cardinal processes of innovation, in particular the implementation of innovative business models. Competition in the market is becoming tougher, and consumers are becoming more demanding and knowledgeable, they know specifically: what they want, at what parameters and prices. This situation conditions their involvement in the very process of production and provision of services, and companies that are unable to adapt to changing market conditions risk being left behind by competitors and losing their positions.

**Research methods** of the present study: conceptual analysis and synthesis of sources related to the concepts of Industrialization 4.0, business models and transformational change, empirical analysis was conducted in the period January-April 2023, which involved entrepreneurs and employees of 170 SMEs in Moldova. The study was conducted in order to investigate the peculiarities and problems in the implementation of transformational change in Moldovan enterprises within the research project (post-doctoral study), financed from the state budget of the Republic of Moldova : “Creating the organizational change management model for small and medium enterprises through the challenges of Industrialization 4.0”, within the framework of the project numbered 22.00208.0807.10/PD.

One reason for the importance of changing business models is the rapid change in technological advances. The latest technologies, linked together in the concept of Industrialization 4.0, such artificial intelligence (AI), blockchain, big data, 3D printing and the Internet of Things (IoT), robotics, machine learning (ML) can significantly change markets and consumer demands. Companies that fail to quickly adapt and incorporate new technologies into their business model risk being left behind.

In addition, changing business models can help companies reduce costs and improve the efficiency of their operations. For example, companies can move from a traditional product sales model to a rental or subscription model, which can lead to increased revenues and reduced costs for manufacturing, marketing, logistics, training and other functions that previously required significant investment.

Another reason for the change in business models is the changing preferences of the general public (both customers and other beneficiaries: the public, government and public organizations). In addition to an increased focus on convenience and speed of service, there is an increasing demand for environmental friendliness and social responsibility of companies. Companies that fail to adapt to these demands risk losing customers.

## **I. CONCEPTUAL FOUNDATIONS OF INDUSTRIALIZATION 4.0 AND BUSINESS MODELING**

Diving into the theme of transformational change associated with global processes compared to the Industrial Revolution or Industrialization 4.0, it is appropriate to cite the main aspects formulated and summarized by the ideologist of this concept, the chairman of the World Economic Forum, Klaus Schwab (Schwab, K., 2018):

- The technologies of the Fourth Industrial Revolution are all based on digital technologies and networks and are connected to each other. Based on the digital technologies of the Third Revolution and the electrical networks of the Second Revolution, they can disrupt even today's digital systems and create completely new sources of value. Today, the Internet is a new ecosystem that creates new values. Those breakthrough technologies that today are still difficult for companies to perceive, tomorrow will be the basic infrastructure of their models;

- The exponential speed of technology diffusion. The faster the diffusion, the greater their impact on investment, productivity, industry, and organizational strategies;

- Technologies of the Fourth Industrial Revolution will penetrate so deeply into human life that it will be difficult to put a line between machine and human (today many people already feel a smartphone or computer is an extension of themselves);

- The power of technologies is enhanced when they combine and produce innovations, that is, when they combine, they produce even more breakthrough and fundamental technologies;

- New technologies will create similar benefits and similar problems, they will be difficult to quantify in monetary terms, and they will greatly expand choice for consumers, reducing costs and increasing quality.

Today, one of the most rapidly spreading management concepts is that of the "business model". Since 1995, when the concept began to spread, until today, a certain understanding of this term has been formed.

Despite the large number of definitions and elements painted by various researchers, of separate research interest is the concept presented by Oliver Gassman, Karolin Frankenberger, Micaela Schick (Gassmann O., Frankenberger C., Schick M., 2014).

The authors propose to consider the business model in four dimensions:

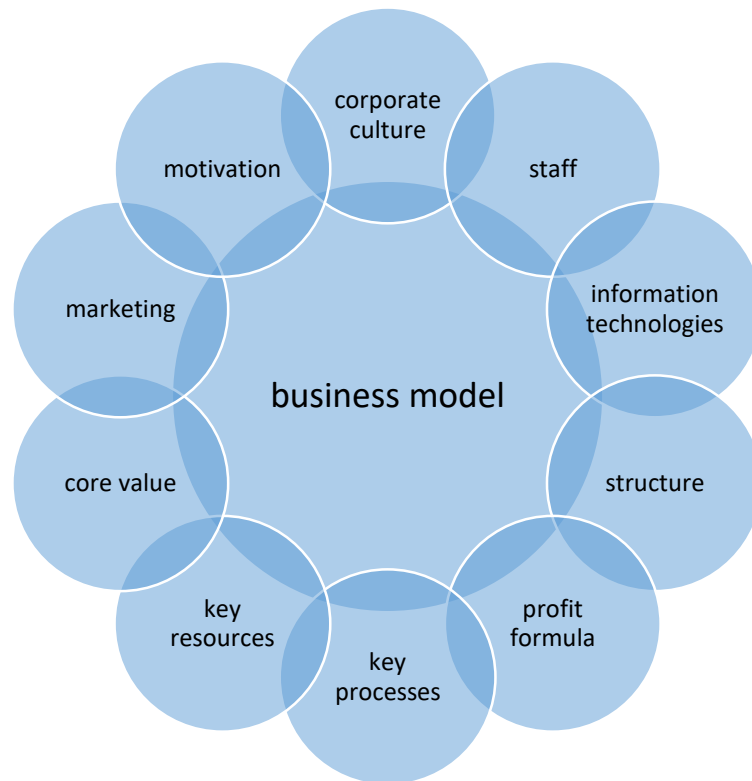
- Customer orientation (**Who?**) - what are the main customer segments that the company focuses on?

- Value proposition (**What?**) Features of goods and services that differentiate the company from its competitors.

- Value chain (**How?**) What are the key actions that need to be implemented to get optimal results.

- Profit making mechanism (**Why?**) Why does the company make a profit, at the expense of what. what is its effectiveness?

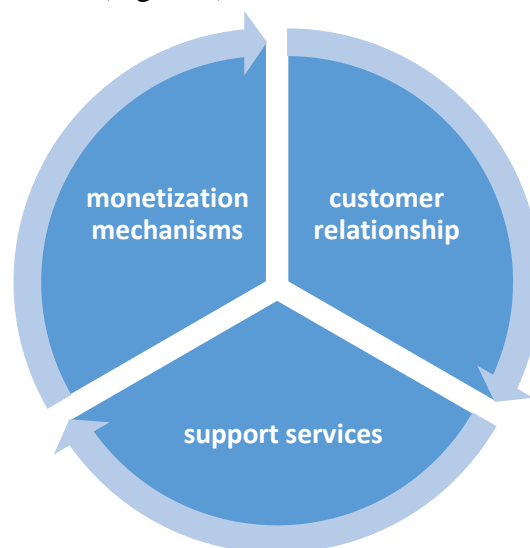
A business model represents a company's logic concerning the creation and appropriation of value (Linz K., Mueller-Stevens G. & Zimmerman A., 2019). Given the numerous studies in the field of building a business model, here are the main elements (Figure 1).



**Figure 1. The main elements of the business model**

*Source: elaborated by the author as a result of research*

Turning to the definition of Gary Pisano, a specialist in innovation and creativity, the process of building a business model involves making decisions about resources, value creation, ways of making and distributing profits. Thus, the main areas that have undergone changes to the business model are as follows (Figure 2).



**Figure 2. Areas of the business model undergoing transformation**

*Source: elaborated by the author as a result of research*

Thus, based on the three main areas of business model transformation, the changes will occur as follows:

**Changes in the work of groups, departments interacting with customers** implies a change in the value proposition of the business model, which is extremely important for the whole system, because the basic idea of business modeling is based on the exclusivity of the proposition. Accordingly, the processes connected with training, coordination and motivation of the personnel, which is the main task of the management system, should be changed.

**Support services**, being "invisible" to the client, are necessary for any business. They represent additional opportunities for the organization, particularly in the field of software and new technologies.

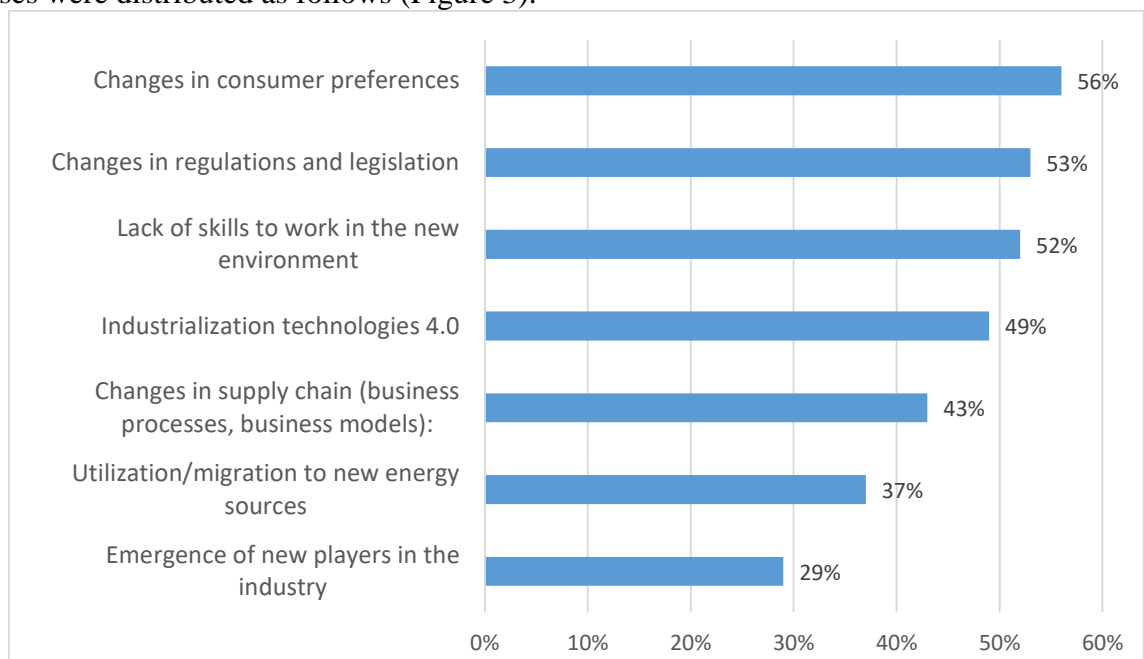
**Changing monetization mechanisms** involves changes in the way revenue streams are created, which should contribute to additional profitability for the company.

These aspects are related, but at the same time, the changes do not necessarily have to happen at the same time. For example, changes in support services lead to changes in customization and monetization.

## II. CHARACTERISTICS OF GLOBAL TRANSFORMATION TRENDS

The transformational processes taking place under the influence of Industrialization 4.0 technology are forcing senior management from all over the world to think about the need for change. For example, a 2023 study by Price Waterhouse among 4,410 top CEOs from 102 countries believes that change is essential to the survival of their companies. According to these estimates, 39% believe changes need to be made within 10 years, more than 10 years later, 59%.

What are the main factors that will affect companies over the next 10 years, managers' responses were distributed as follows (Figure 3).



**Figure 3. How much the following factors will affect the profitability of the company, according to the respondents (assuming that only the answers "significantly" and "very significantly" are taken into account)**

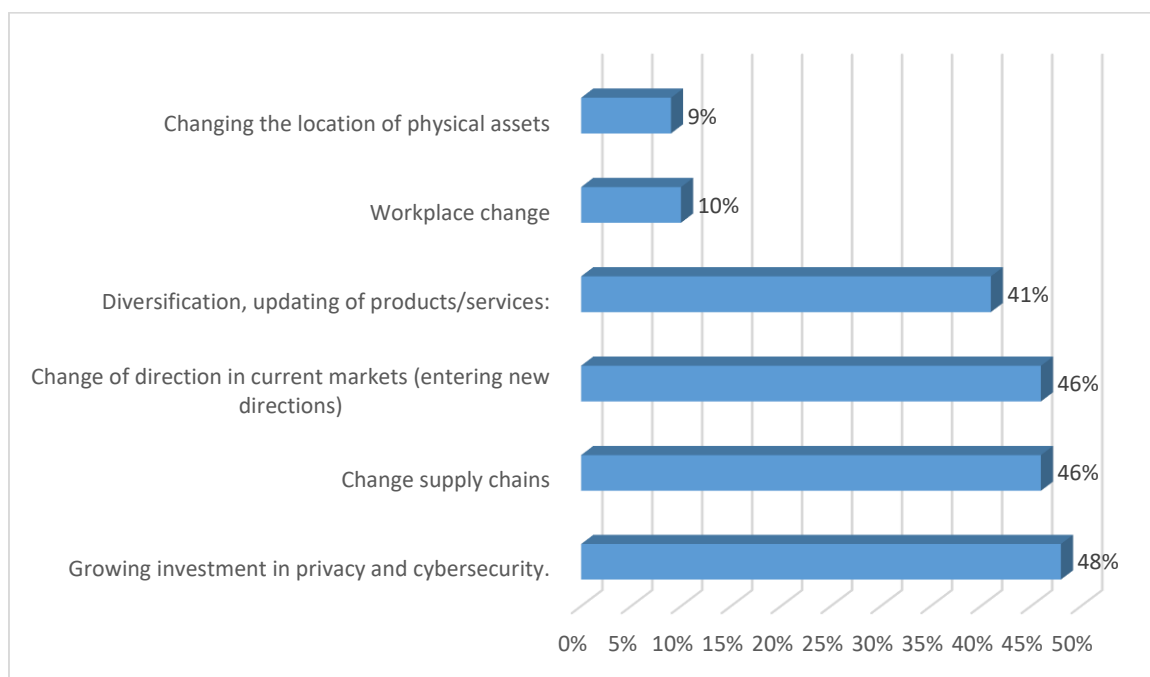
Source: adapted by the author based on research PWC:

<https://www.pwc.com/ceosurvey.html#what-kind-of-ecosystem-are-you-building>

The diagram clearly shows that the changes associated with the provocative technologies of Industrialization 4.0 will seriously affect the profitability and processes of companies. Returning to the conceptual definitions of business models, these factors include all 4 questions of innovative change (who, how, why, what). The largest number of respondents point out the change

in customer preferences among the main factors, which clearly corresponds to the main orientation in the transformation of the business model, namely the question "WHO?". 43% of respondents are inclined to believe that changes in the value chain will significantly affect the profitability of the company. This once again proves the understanding of leaders about the need for changes in business processes and business models. This focuses on changing the area "HOW?" from the business model conceptual diagram. The value proposition, or ("WHAT?") will depend on how the company can navigate all the other provocative changes. Profit making mechanism, or the answer to the question ("WHY?"). is being implemented in connection with the introduction of innovations related to Industrialization 4.0 (which is also of concern to management companies, as evidenced by 49% of respondents' answers).

In the continuation of the study, those areas of investment associated with global changes, in particular with geopolitical problems, are noted.



**Figure 4: What are the next actions your company is going to take during the year? (according to respondents)**

*Source: adapted by the author based on research PWC:*

<https://www.pwc.com/ceosurvey.html#what-kind-of-ecosystem-are-you-building>

According to the respondents' answers, it is clear that in the near future investments will be directed to improving cyber security and ensuring the safety of data. 46% of respondents are willing to implement changes in value chains, which again is associated with a change in the business model (partially or completely). Also, a large percentage of managers tend to need to enter new markets (46%) and carry out innovative changes in goods and services (41%). Other factors are also related to changes that will need to be made in existing business models: relationships in the course of work, finding new partners, or moving physical assets.

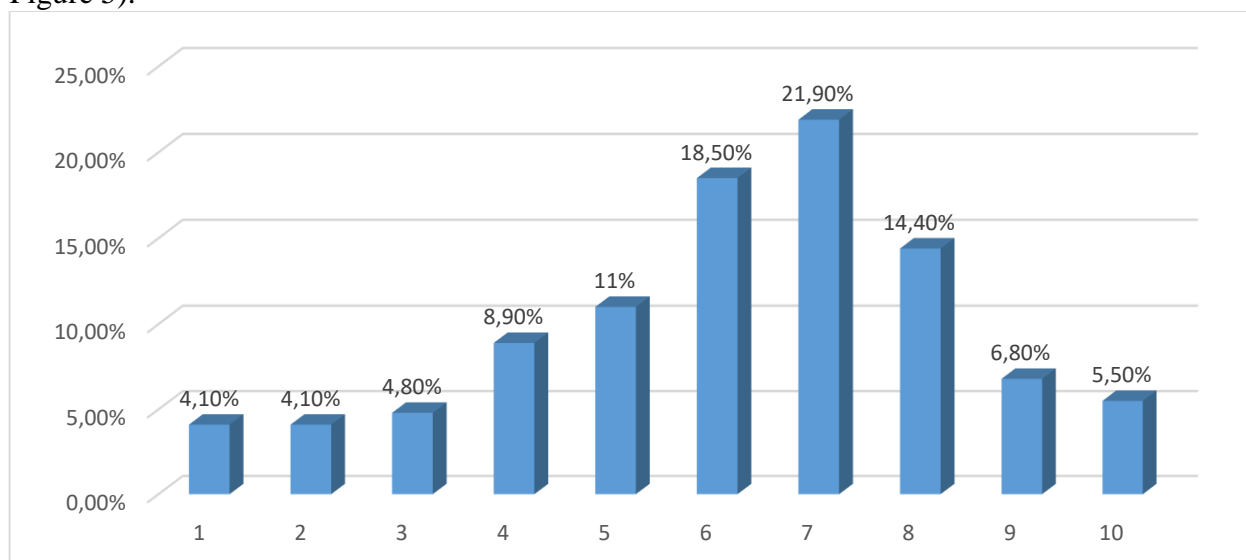
### **III. TRENDS IN TRANSFORMATIONAL CHANGES IN SMEs IN THE REPUBLIC OF MOLDOVA**

The trends described above naturally affect the enterprises of the Republic of Moldova. At the same time, we note that SMEs face developmental challenges for many reasons. Firstly, these reasons are due to the geopolitical situation and the aggravated situation in which the Republic of Moldova is currently located, and secondly, during the pandemic, enterprises in this sector suffered the most, being the most vulnerable category. Going further back in history, the Republic of Moldova, linked to the legacy of the former Soviet Union, does not have a developed entrepreneurial culture, which also affects the activities of SMEs.

In addition, the enterprises of this sector have a number of features all over the world, not only in the Republic of Moldova. These are difficulties in financing, often due to small turnovers of companies, and often more difficult access to borrowed funds. Often such companies lack qualified specialists, developed infrastructure, etc. (Dorogaia, I., 2022).

Along with this, there are a number of advantages that distinguish SMEs. First of all, they are associated with adaptability and the rapid introduction of innovations, flexibility in decision-making and often a large interchangeability of employees.

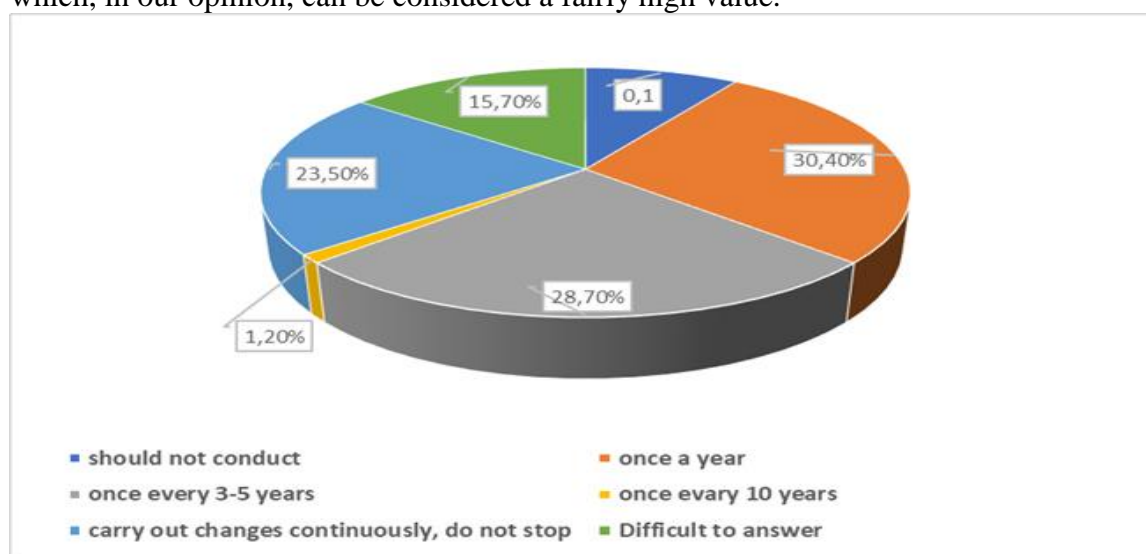
Exploring the topic of changes in SMEs in the Republic of Moldova, we asked entrepreneurs and employees working for SMEs how much your company is ready to change the business model (on a 10-point scale). The answers were not unambiguous (they are presented in Figure 5).



**Figure 5. Willingness of the company to change the Business Model (on a scale of 10, where 1- not at all ready, 10- perfectly ready)**

*Source: according to the results of the study*

As can be seen from the diagram, the main percentage of answers falls on the average value (6.7 and 8 points, which corresponds to a readiness of 60, 70 and 80% to make changes, respectively). At the same time, the largest number, 70%, was noted by 21.9% of respondents, which, in our opinion, can be considered a fairly high value.

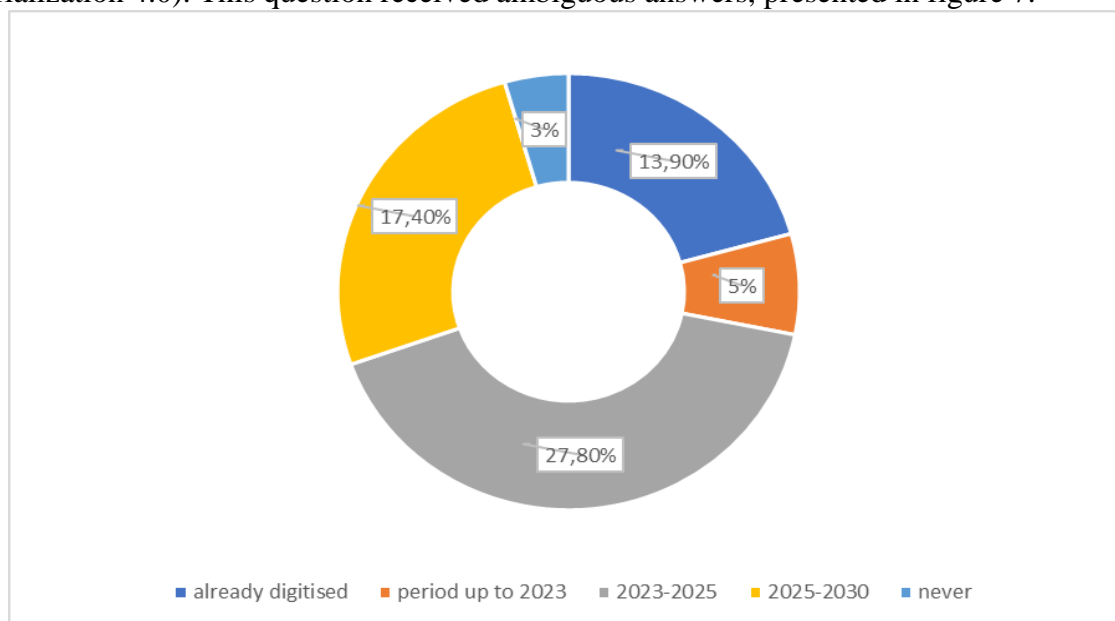


**Figure 6. How often should a company make organizational changes (according to respondents)**

*Source: according to the results of the study*

Also, in our opinion, we received a favorable picture regarding the answers to the question regarding the need for the frequency of changes in the company. As can be seen from Figure 6, the largest number of respondents, 30.4% believe that changes should be made once a year, 28.7% believe that they should be made every 3-5 years, which is also not bad, but most of all – I would like to note a fairly large segment of respondents (23.5%) who answered that changes should not be stopped at all, but, on the contrary, should be carried out constantly. Which exactly corresponds to the modern concept of change management.

Of great interest are the answers received to the question regarding the period of transition to a new business model (digital transformation, the use of new technologies associated with Industrialization 4.0). This question received ambiguous answers, presented in figure 7.



**Figure 7. Over what period will your company make transformational changes**

*Source: according to the results of the study*

On the positive side, most companies are going to implement transformational changes (according to the respondents) in the coming period, that is, in 2023-2025. At the same time, 13.9% of employees claim that they are already working in the updated company. A large percentage of respondents, 17.4%, believe that their companies will transform in the future, that is, until 2030, which, in principle, is also not a bad indicator, at the same time, we note that in the face of changes associated with Industrialization 4.0, and they are inherently happening rapidly, some companies simply will not have time to keep up with those who introduce these changes earlier. And, unfortunately, 3% of respondents are completely pessimistic about the transformational changes in their companies. Therefore, given the importance and necessity of changing the business model, we can assume negative trends in these enterprises.

## CONCLUSIONS

Industrialization 4.0 has left many companies with a choice: either change their business model or leave the market. Competitive companies have already transformed their business models. Many companies that have been successful for decades today are in a difficult position: they cannot find a path to transformation and are trying to leave it as it is, or make changes in less costly and risky ways. But today to be competitive means to be constantly updated.

Having studied the features of the changes caused by Industrialization 4.0 in SMEs of the Republic of Moldova, we come to the following conclusions:

- Making changes is a prerequisite for survival;
- Most of the representatives of enterprises understand that the changes will provide a competitive advantage for companies;
- Changing the business model is an integral part of the changes;



- Digitalization is one of the components of the model, but not the only one;
- Paramount in any model of change is the rethinking of the management system, and then its digitization;
- Most representatives of SMEs in the Republic of Moldova are optimistic about the future and are going to carry out transformational changes, some have already carried out them, at the same time, a small part of the companies, according to their representatives, will not carry out transformations;
- For a large-scale rethinking of business models, an integrated approach to change management is required, which implies a certain approach to leadership, team building, motivation, with the obligatory use of the latest technologies, artificial intelligence, the Internet of things and other components of Industrialization 4.0, which will facilitate activities and increase efficiency several times.

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