

Disruptive Innovations and Business Digitalization



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Abstract: *The article considers the role of disruptive innovations in the business environment digitalization. The emerging effects of the digital technology introduction, both economic and social, are investigated. The article analyzes and predicts the consequences of changes in certain industries, specialties and professions in connection with the active transformation of the market under the influence of developing IT. Methods of system approach, as well as statistical and economic analysis, have been used in the study. As a result of the study, specific differences have been revealed in the perception by different generations of the changes taking place. Attention is focused on historical factors affecting the formation of worldview and attitude towards life and ongoing changes. It is concluded that it is necessary to understand the trends of digital output for adaptation to them. In conclusion, it is noted that the digital transformation of business not only changes the business environment but also has an impact on management as a system of organizational governance, which must correspond to the new realities.*

Keywords: *generational theory, lifelong learning, burnout, business environment.*

I. INTRODUCTION

The modern market economy is characterized by a special factor of competition associated with the development of IT – digitalization [1-3]. New ways and methods of organization and development of business are rapidly introduced [4-7], which has led to the emergence of a new term – "digital transformation of business" [8].

In mass media, economists, politicians and managers make convincing arguments about the progressiveness of these changes, which affect, first of all, the development of civilization as a whole. However, any discovery has not only positive aspects. Moreover, for the successful operation of any commercial organization, it is necessary to foresee all risks arising with the discovery and implementation of disruptive innovations and business digitalization.

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II. PROPOSED METHODOLOGY

A. General description

Methods of system approach, as well as statistical and economic analysis, were used in the study.

It is necessary to clearly understand – what is the specificity of digitalization? First of all, due to digitalization, new areas of business emerge and develop. For example, actively developing e-commerce, which allows consumers to make purchases without leaving home. At the same time, consumers carry out numerous previously time-consuming business operations. Second, modern people cannot imagine their lives without products of IT, which have already become integral attributes of both every day and business life – computers, mobile phones, tablets and smartphones, providing great opportunities. Another advantage of digitalization is the emergence of new services since new devices have replaced people in the performance of some operations. On the one hand, humanity has long sought to replace manual labor with machine labor since machines work faster and more productively, do not make mistakes and obey their program. In addition, machines can operate 24 hours a day, 365 days a year and do not require bonuses or paid sick leave and vacation. This is a significant advantage as it solves not only the problems of business but also those of the state [9].

However, if the initially productive effect prevails, it is necessary to consider the other side – how will it affect the general way of life of people in the state? After all, if the development and introduction of digital innovations occur massively, then machines will gradually replace some workers. "Living labor" will be reduced, which will lead to significant social problems – a decrease in jobs and, consequently, the emergence of complications associated with job search and earning a living. Isn't this why the government now raises the question of introducing a four-day workweek with preservation of wages?

Another question is what to do with workers who will be let go in the process of digital technology implementation? Even if the workweek is reduced with preservation of wages, the large amount of free time will force people to look for leisure – entertainment, travel, training or, possibly, extra income [10].

B. Algorithm

In general, the digitalization of business, first of all, determines the accessibility of a huge amount of information, as well as entertainment,

for people of all ages and strata, regardless of wealth, education or social status. Let us try to predict several problems that arise in connection to this phenomenon.

1. *Training.* Constantly changing consumer preferences and competitive environment require advanced training of employees, in short term and, preferably, on the job. Therefore, the emerging technology of microlearning has become popular among employers. Its advantage is associated with the fact that the technology can help a company solve specific problems since microlearning techniques are aimed at formulating operational recommendations – how to solve the current problem arising at a particular workplace [11]. Using the recommendation, the employee is able to understand how to solve the problem. However, since the actual training never occurred, the knowledge of how to proceed in such cases isn't acquired.

2. *Digitalization* has a powerful impact on business. The theory of disruptive innovations was proposed by American researcher Clayton Christensen in the book "The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail" in the late 1990s. The essence of the theory is that emerging innovations and know-how affect the correlation of values in the market in all sectors of the economy.

What is the mechanism of disruptive innovations? Why are they "disruptive"? Let us suppose that there is a certain product that has proven itself in the market, is in high demand among consumers and brings good profit to the companies that produce it. At this time, new technology is created, which is perceived as complementary, secondary, supporting the existing successful product. However, the new technology, initially not threatening the product, continues to develop and gradually becomes dominant [12].

Science has repeatedly shown that new technologies often create opportunities much earlier than needs are identified. Therefore, the rapid development of supporting technologies that are ahead of the main ones, in essence, has a negative impact on the business that uses old technologies in such a way that it actually dies. There are numerous examples of this – landline telephony and traditional analog cameras have ceased to be in demand.

Similar trends can be observed now in the financial market. The reason for this is the emergence of a surrogate currency – bitcoin. Initially, poorly understanding the possibilities of this innovation, it was perceived as something outlandish, entertaining. Bitcoin was positioned as a currency of videogames, in which certain transactions take place, and the sphere of financial transactions was presented as very specific, limited. Everything has changed over time and now, more and more experts sound the alarm: the new blockchain technology has a negative impact on the banking business, as it has several advantages – it provides high security and speed of financial transactions and is carried out without intermediaries. Therefore, it is of greater interest to the consumer than the complex banking system [18].

Not so long ago in the UK, Barclays Bank using the blockchain technology issued a letter of credit of 100 thousand dollars with an impressive speed of operation – only about 4 hours while normally this process takes 8-10 days. This is just one example of how disruptive innovations change the world.

Digitalization, or digital transformation, affects all spheres

of activities creating a lot of problems around the world. Technological avalanches have led to the emergence of the concept of lifelong learning. First of all, this is due to the competitiveness of organizations, forced to introduce innovations and, consequently, to have specialists who work with them. Second, every employee must constantly improve their skills to be competitive. Since lifelong learning requires qualitative restructuring of the existing system of professional and corporate education, there is a problem associated with ensuring the implementation of the concept not only in Russia but in all countries [14].

All changes in the technological sphere affect the speed of social change. First of all, this concerns the release of a significant amount of labor resources. Therefore, it is important to understand what people will do if for some reason they lose their jobs.

Digital transformation of business creates an opportunity for competition anywhere in the world and, thus, contributes to the destruction of long-standing centers of competition, which also leads to problems for entrepreneurs.

Another aspect of technological change is related to the human factor and the burnout effect. Psychologically, to a greater or lesser extent, any changes that violate the usual rhythm of human life, lead to stress. Radical transformations cause a sense of social helplessness and insecurity, as a person might at any time lose what seems to them to be the basis of their life – their profession, not just their workplace [15]. Disruptive innovations, on the one hand, create opportunities for the development of civilization. On the other hand, they destroy the profession.

The high speed of changes taking place is also not perceived psychologically adequately by everyone – for many, this turns into a personal problem. For example, for people of retirement age, replacement of savings books (to which pensions were transferred) with plastic/bank cards is still a big problem: some do not know how to use terminals for cash withdrawal while many just do not trust this system and keep waiting for the old-fashioned postman who brings their pension personally on a certain day.

The issue of relationships between different generations is very important. In 1991, Neil Howe and William Strauss created the Strauss-Howe generational theory [16], which arose at the junction of several disciplines. After conducting a study on a large sample of people of different ages, the researchers revealed a curious pattern. It turns out that there are periods, in which most people have similar values (values are understood as the importance of phenomena and objects of reality in terms of their compliance or non-compliance with the needs of society, social group or person). The theory is based on values inherent in representatives of different generations and formed under the influence of social events and family upbringing. E. Shamis headed the research project entitled "Theory of Generations in Russia: Rugenerations", which has led to a certain improvement of periods and characteristics associated with this direction [17]. The researcher argues that fundamentally, the change of generations occurs around the world in about the same mode and the qualitative characteristics of generations are similar.

Comparative characteristics of generations, based on the research by Shamis, are presented in Table 1.

Table 1. Comparative characteristics of different generations in Russia

Generation	Year of birth	Events	Characteristics
Greatest generation	1904-1923	World War I Revolutions of 1905 and 1917 Collectivization Creation of the USSR	Hard work, responsibility, commitment, ideology, family values, categorical judgment
Silent generation	1924-1943	Stalin's purges World War II Restoration of the destroyed national economy Discovery of antibiotics	Devotion, law-abidingness, respect for status, honor, patience
Baby boomers	1944-1963	End of World War II Khrushchev Thaw Space exploration Cold War Standards of school education Health care guarantee Emergence of rock music	Optimism, interest in personal growth and gain, collectivism, team spirit, cult of youth
Generation X	1964-1983	Continuation of the Cold War Restructuration Drugs Afghanistan War	Willingness to change, global awareness, technical literacy, individualism, desire to learn, gender equality
Generation Y	1984-2003	Dissolution of the USSR Terrorist attacks and military conflicts Development of digital technology Mobile phones Internet	Civic duty and morality, responsibility, skepticism and inability to obey, immediate gain
Generation Z	2004-2023	Internet development Smartphones Business digitalization Disruptive technologies	Irresponsibility, mass conformity to fashion, clip thinking, lack of authority, inability to think systematically

Recent research shows that there are inherent differences between the "neighboring" generations Y and Z. This phenomenon already negatively affects management and creates a global problem, since different generations have different approaches, for example, to work, technological changes and changing business architecture.

Generation Y want to do only interesting work and are not ready for routine. In addition, it is important for them that the management of a company recognizes that everyone has a personal life, interests and hobbies in addition to work, which are just as important, and they are not willing to sacrifice them for the sake of the company.

If one considers the Silent generation, for them, work was a natural, necessary part of life. People literally supported the cause they dealt with, personal interests were subordinate to public, work was the meaning of life and achievements gave psychological assurance that "this is a life well-lived".

Generation Y do not understand and accept this and the reason for this is a change in values. Moreover, there are other differences, such as those in thinking, which scientists call "mosaic thinking". Generation Y cannot work with textual information because a text of more than three pages causes problems for them. Young people belonging to Generation Y cannot focus their attention and analyze a problem for a long time. If the text also contains technical terms or analytical data, then it becomes an even bigger problem.

In Generation Z, the problem is also the decline in communication skills associated with real interpersonal communication, that is, not through chat rooms and applications for smartphones and tablets, but in person. Children of this generation are already accustomed to the Internet, social networks and GPS navigation. Thus, when getting into a no connection zone, they are lost and do not know how to deal with a difficult situation. When a problem

arises, they immediately turn to the Internet and try to find solutions there, rather than use their own heads. In addition, there is a common problem for all generations – an increase in the information flow. It is often impossible to understand what is reliable and what is not. On the global Internet, there is information of different quality, volume, reliability and it is very difficult to understand what information is objective and true and what information is fake.

III. RESULT ANALYSIS

So, what is happening to modern management? It is believed that any top manager, having an analytical mind, should learn to track even the beginning (weak) trends in the emergence of disruptive innovations. This is now called a risk management system, that is, a system for anticipating the occurrence of negative factors that threaten the viability of a company. It is possible to consider the emergence of a serious problem that needs to be addressed at the level of higher education – university education – and additional education. This is the need for a combination of skills, primarily in the field of IT and artificial intelligence, which is important to develop in modern managers to form the ability to effectively participate in market competition. For example, today the employer makes higher demands to the knowledge in the IT field for graduates in the Finance and Credit specialization, as the digital transformation radically changes the banking sector.

Graduates must be familiar with the blockchain technology, its advantages and disadvantages, as well as the scope of application. This is understandable, however, it is not clear where one is to get information on this technology, as the university system now provides only fragmented information.

This means that students receive knowledge on finance and credit in one department and everything related to IT, algorithmization, etc. in another. The problem is not only that it is necessary to invite a lecturer from the IT department to the finance program, but that this specialist does not have the necessary knowledge and will not be able to explain how to use blockchain technology in the financial sector. Therefore, the conclusion arises that it is necessary to train teachers on a new level, using a new class of information, strategies and methods. This is just an example of two areas – IT and finance, but the same applies to other areas. The development of modern management is aimed at a fundamental change in management systems – the fight against hierarchy – as the reaction of business slows down significantly, which reduces competitive opportunities. The focus in recent decades has been made on the concept of agile – a product of IT development. Agile is positioned as a "set of general principles" for new methods of developing and managing innovative products. The Sberbank PJSC, one of the first in Russia, began to massively train its employees in this technology, which, of course, created great difficulties, since the bank is a conservative, formalized system and the agile technology is positioned as a "flexible methodology". This was the main managerial problem that required an extraordinary solution – how to combine flexibility with strict banking rules and requirements of the regulator? After all, based on the development of IT, the bank, should launch new products, develop mobile applications, etc. Finally, the solution was found: one part of the units had to work in a rigid, formalized system while the other – to engage in innovation. Difficulties arose only in the zone of intersection of interests since it was impossible to clearly distinguish between certain areas of activity. Consequently, management had to experiment. For this, modern top managers need to develop the cognitive flexibility of thinking, that is, the ability to constantly adapt to changes in life. What does this ability give? First of all, the ability to keep in mind two or more conflicting ideas, properly analyze the situation and quickly make a managerial decision. This skill can and should be developed by modern managers, as the business world is becoming increasingly contradictory and it is important to be able to work with it. Not the least role in this development is played by higher education institutions, which must also change in accordance with the requirements of the market environment and disruptive innovations introduced into it.

IV. CONCLUSION

It is possible to note that there are a lot of similar problems in management, which is a living, actively developing area. Since any innovation quickly becomes obsolete, management requires constant training and expansion of knowledge, skills and abilities – lifelong learning.

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