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STRATEGIES OF INFORMATION AND INNOVATION ACTIVITY DEVELOPMENT AT ENTERPRISE IN DIGITAL CONDITIONS

Abstract. The relevance of research on information and innovation activity in the enterprise is undeniable, especially since this topic is being considered in the new conditions of digitalization. The relevance of the topic indicates that the conditions of digitalization are of great practical importance and scientific novelty, as they impose a new imprint on the solution of problems of modern enterprise. The purpose of the study is to reveal the essence and importance of strategies of information and innovation activity in the enterprise in terms of digitalization, which helps the enterprise out of the crisis and achieve its competitiveness.

Objectives of the research: to analyze the directions of accelerating the pace of implementation of new strategies for the development of information and innovation activity in enterprises; identify the main quantitative and qualitative criteria for the development of this activity; to reveal the types of innovations and the direction of their development.

Research methods - system analysis and synthesis, synergetic, complexity methodology, which will analyze the problems of digitalization in the introduction of digital technologies that will radically change the economic culture, society, the person himself. The results of the research: it is proved that new ways of using digital technologies influence the directions of strategies of information and innovation activity in the enterprise in the conditions of digitalization; the development of the robotics complex as a strategy for the development of information and innovation activity at the enterprise in the conditions of digitalization has been elucidated and the concept of adequate and innovatively advanced information and innovation activity at the enterprises in the conditions of digitalization has been formed.

Conclusions. The best traditions of the digital society represented by highly industrialized countries should be harnessed, as well as broadening the scientific knowledge of the digital economy as a new scientific trend emerging in the context of globalization, digital and technological revolution, and constantly extrapolating and introducing the best traditions of the digital economy into our lives. Practical recommendations - to develop and improve various strategies for the development of information and innovation activity in the enterprise in terms of digitalization of the innovation system.

Keywords: strategy, information and innovation activity, digitalization, enterprise, digital technologies, robotics

Formulation of the problem in general and its relation to important scientific or practical tasks.

Relevance of the research topic.

The relevance of the research topic is that information and innovation activities in the context of digitalization play a large role in that enterprises (organizations,
institutions, firms, companies) play a large role in forming new traditions of dissemination of innovation and information. In particular, there are numerous applications of diffusion of innovations, new communication technologies in the conditions of digitalization, such as the Internet, expansion of innovations in the context of network management and communication, dissemination of innovations through the application of such concepts as critical mass, diffusion of innovations, digitalization, digitization. Strategies for the development of information and innovation activity at the enterprise in terms of digitalization are, in fact, socio-economic and technological process, which is clarified in the process of social construction [1, p.19]. Implementing a new idea, even when it has obvious benefits, is not easy. From the moment of creation of many innovations to the moment of their widespread introduction it often takes many years.

Purpose and formulation of goals of the article

The purpose of the study is to reveal the essence and importance of strategies of information and innovation activity in the enterprise in terms of digitalization, which helps the enterprise out of the crisis and achieve its competitiveness.

Objectives of the study:
- to analyze the directions of accelerating the pace of implementation of new strategies for the development of information and innovation activity in enterprises
- to identify the basic quantitative and qualitative criteria for the development of this activity;
- to reveal the types of innovations and the direction of their development;
- to justify new ways of using digital technologies;
- to find out the development of the robotics complex as a strategy for the development of information and innovation activity in the enterprise in terms of digitalization
- to formulate the concept of an adequate and innovatively advanced information and innovation system.

Research methods - system analysis and synthesis, synergetic, complexity methodology, which will analyze the problems of digitalization in the introduction of digital technologies that will radically change the economic culture, society, the person himself.

An analysis of the latest research and publications that started this issue and which the author relies on

We focus on the work of Everett M. Rogers "Diffusion of Innovation" (Kiev, 2009. 591 p.); V. Starchinsky, V. Tsepkalo. “Towards an Innovation Society” (Minsk, 2016). Shevchenko Anastasia «Digital era. Just about digital technology ”(K., 2018. p. 457); Ford Martin "The Advent of Robots. Technology and the threat of the future ”(K., 2016. 400 p.); O'Reilly Tim's "Who Knows What the Future Will Be" (K., 2018. 448 p.); Voronkova V.G. Digital Economy & Digital Management of the Information Society (Zaporozhye, 2019); Skull of Alla, Voronkova Valentina, Nikitenko Vitalina,
Informatization. Selection of previously unresolved parts of the general problem addressed by the article.

Enterprise-based computerization is a collection of knowledge, experience, intellectual, human and social capital that were used in the development, creation of new products (services). High-tech manufacturing industries have come to be identified at the expense of high efficiency, as technology mastery is the most obvious reason for the combined wealth of nations. Information and innovation technologies at enterprises include the development of high technologies related to the development of space industry, nanotechnology, robotics, and relevant to the following industries: information, biological, pharmaceutical, new materials, energy, environmental protection, waste-free technologies, aviation, aviation economy, transport [2, p.216].

Outline of the main research material with justification of scientific results.

Rationale for the study

1. Areas of accelerating the pace of implementation of new strategies for the development of information and innovation activity in enterprises

Therefore, ways to accelerate the pace of implementation of new strategies for the development of information and innovation activity in enterprises in the context of digitalization is a common problem of heads of organizations, leaders, leaders, individuals. For many enterprises of the digitalization era, the characteristic direction of the strategy is the diffusion of innovations as a new modern direction of diffusion of innovations, on the basis of which the high index of innovation.

Strategies for the development of information and innovation activity in the enterprise in the context of digitalization are connected with the introduction of new (breakthrough) technologies, which testifies to the modernization processes that are happening in many enterprises and ensuring the highest level of competitiveness. The development of high (breakthrough) technologies takes place in all spheres - science, education, management, improvement of transport and telecommunication systems, improvement of skills of work, improvement of the investment climate. Businesses that invest, invest in new developments are recognized as priorities. The foreign analysis of the research of information and innovation activity at enterprises in the conditions of digitalization shows that the introduction of high technologies has radically changed the
economic culture, society, the person himself.

2. The main quantitative and qualitative criteria for the development of this activity

Strategies for the development of information and innovation activity in the enterprise in terms of digitalization use the following basic quantitative and qualitative criteria for the development of this type of activity:

1) scientific intensity (high ratio of scientific professionals to the total number of employees of the enterprise);
2) a large percentage of the costs of research compared to the total costs of enterprises, using them for innovation;
3) maximum availability and accessibility;
4) production of high quality competitive products;
5) fundamental developments at the level of private firms;
6) high level of risk and profit [2, p.216].

To adequately identify strategies for the development of information and innovation activity in the enterprise in the context of digitalization as a new phenomenon it is necessary to create a conceptual model of innovation, as we can attest to the low level of innovation at Ukrainian enterprises. The innovation development model should be combined with concepts such as methodology, technology, innovation, science, technology, commercialization, computerization, digitization, and support for IT technologies and IT infrastructure, without which innovation will not increase [3, p.51].

The situation is such that only 20% of the budget can be spent on development and new ideas. Yes, lately, bank budgets have shifted to digital banking and the stubble of accelerators and innovation labs. Since 2017, Amazon.com has been developing at the peak of social networking success.

Blockchain allows you to record and store true information about who owns it, but blockchain does not yet capture the full capabilities of information technology. Among the main benefits of blockchain are: digital recording, chronology, data control, accessibility and openness, globality, transaction speed, user control of their data and transactions.

We can assume that we will be once again surprised by the progress that will take place over the coming years and decades. Therefore, managers must develop their strategies for the development of information and innovation activities in enterprises in the context of digitalization, to counter the challenges, instability, asymmetry of information, the threat of job losses, migration of people to other countries.

3. Varieties of innovations and direction of their development

One common idea is that automation is a threat mainly to low-skill and low-skill rhombuses. This assumption follows from the fact that the functions associated with such jobs are routine and unique [4, p.17]. Digital technologies contribute to the mobility of production, allowing you to run a profitable business at no
unnecessary cost. When viewed as a digital projection, physical assets can be managed as information assets. Replacing materials with information can affect drones. Machines are made safer by deformation zones, airbags and other sensible inventions that save lives in the event of accidents. Therefore, one should constantly try out new ideas, learning to perceive differently, but to do so, refocus their thinking.

Networking and technology platforms can become a new, more effective form of corporate organization that outperforms and displaces former ones. "Uber or Lyft's algorithms work with large-scale computing, as do search engine, social networking and financial market algorithms. The most advanced smart technologies are artificial intelligence, which is involved in many algorithmic systems [5, p. 94]. Uber or Lyft companies can be called network platforms that provide real-world services.

Today, the term "augmented reality" has become an actual term. Reality is complemented in different ways. The TaskRabbit service complements it only in the fact that it seeks clients, but does not work for people. The reality of Uber and Lyft drivers is compounded by the fact that they are easy to navigate in space and find passengers. Surgeons and oncologists may work in traditional hospitals, but their cognitive realities are augmented because, unlike their predecessors, they have up-to-date knowledge of medicine.

Augmented reality also penetrates the work of construction inspectors, architects and clutter workers. O'Reilly Tim in "Who knows what the future will be like" notes: "If you want to improve the economy of the future, look for new ways to complement the reality of employees, providing them with new skills and opportunities [5, p. 94]. Yes, Uber is a next-generation economy company that creates cognitive dissonance. The Web is rapidly evolving thanks to an open platform for experimentation and innovation that has opened up opportunities for an unlimited number of players. For technology advancements, it is important to be aware of the efforts of enthusiasts that once complex processes become free and elementary. It is important to implement digital management, digital economy, digital marketing, in order to improve the development of information and innovation activities in enterprises in the context of digitalization [5; 6]. Innovative processes at enterprises and organizations should be developed; interactive innovations; information and innovation infrastructure of the enterprise; diffusion of innovation.

4. New ways to use digital technology

In today's digital environment, the role of industrial enterprises and all industries that would rebuild their digital production systems is increasing. New ways of using digital technologies that absorb industrial development and consumption are also contributing to environmental restoration and conservation. As
Klaus Schwab notes, “The deep uncertainty that accompanies the development and adoption of new technologies means that we still do not know how the transformations brought about by the industrial revolution will unfold” [1, p. 9].

The previous version of the economy of civilization was based on warehouses with goods and factories crammed with transport goods. In the context of digitalization, attention has shifted from physical commodity stocks to intangible commodity flows such as copies. The smallest particles of calculation are at the heart of this constant flow system. Today, we are entering a third phase of computation called "flows". A place where trillions of information flows overflow and flow into each other is called a cloud. With cloud updates, we get Cloud software - this is a new organizational metaphor for computers, so the third digital bases are streams, tags, and clouds.

In modern conditions of digitalization, dematerialization (reduction of material consumption) is a characteristic feature, that is, the creation of better things with less material. A classic example is a beer can whose shape has changed since 1950 and its modern appearance. Most modern products have been dematerialized. The weight of an average car is now 25% less than in the 1970s. Household appliances now weigh much less than before. Of course, the greatest reduction in material consumption occurs in communication technologies [2, p.110]. giant PC monitors became flat thin screens (though TV diagonals) lengthened, and massive desktops turned into pocket smartphones. However, the general trend is for smartphone products with fewer atoms. Digital technologies are accelerating these processes by stimulating the transition from products to services. Software has become the first product to become a service; today, most software is sold as a service, not as a product. In recent years, hotels have emerged as a service, tools as a service, clothing as a service, toys as a service, furniture as a service, health as a service, leisure as a service, school as a service. Today, all businesses and much of society depend on computers.

Clouds are computing with an impressive degree of reliability, high speed, deepening capabilities, and no need for technical support. Instead of calculating at discounted prices, it made it hundreds of times easier to start a technology company. Instead of creating sophisticated computing infrastructure, such a company can become a subscriber to cloud infrastructure. In the language of industry, infrastructure is a service. Being able to use the best infrastructure through access to the cloud is a major reason why so many new businesses have emerged in Silicon Valley over the past few years because they get access to products they do not own.

5. Development of the robotics complex as a strategy for the development of information and innovation activity in the enterprise in the conditions of digitalization

In terms of digital technologies, robotic complexes are developing. For
decades, industrial work has worked alongside people in warehouses and factories, but modern industrial work is a symbol of technology. They are capable of lifting hundreds of pounds again and again and moving objects to the nearest millimeter, which no one can match. Initially, these devices were too expensive, sometimes costing hundreds of thousands of dollars and taking months to set up their computer programs before doing what they were intended to do. Despite the cost, no industry has benefited greatly from robotics - for example, in 2013, this industry accounted for 40% of global robot sales. The robots make it faster, safer, cheaper and more efficient, so all leading manufacturers, from Ford to BMW, use them for automation. Five hundred robots work tirelessly at one Hyundai plant in Alabama alone - welding, dyeing, fastening and transporting auto parts, producing more than a thousand finished machines a day [3, p. 425-425].

Industrial work is becoming cheaper, more efficient and convenient, and nowadays jobs are found everywhere - from restaurants to hospitals. More than 150 health centers operate Aethon TUGs, which can be called with the smartphone app.

They are able to autonomously move the corridors to deliver medicines, food and linen to patients and do almost all the work previously done by the orderlies. Other medical bots, such as Intuitive Surgical's da Vinci robot, allow surgeons to operate patients with a robotic arm. Although profits in the industrial and medical spheres have proven to be quite significant, the development of military robotics is equally impressive. Back in 2003, the Pentagon had about 50 drones in its arsenal. Today, the United States has the largest number of drones among all countries - they are capable of deploying around 11,000 free riders and 12,000 ground-based robot warriors worldwide. By 2012, there could be a dozen robots per soldier in the US military [3, p. 427].

Bill Gates predicted that in the coming years, miniaturization, common technical standards, and improved sensors would make work appear in every home. Already, homeworks are emerging that clean the floor, water the plants, and feed the pets. Businesses are also beginning to realize the benefits of telephony robots in offices. Time will pass and we will see how the work will begin to apply for any job or assignment.

Technological changes take place at an exponential rate, while changes in the work of enterprises are rather non-linear. Only 13% of Americans approved of Congress in 2014. Trust in the government, both in the US and in Ukraine, is virtually nonexistent - whether due to corruption in politics, whether through suspension of government, or because of party interests or shortcomings in existing legislation. The problem with such asymmetry is that we will not be able to tackle the challenges of the twentieth century with the help of institutions that have not changed since the twentieth century, and with
the need to formulate new strategies for the development of information and innovation activities. It is necessary that governments and business leaders are much more adaptable to respond ten times faster to the new problems of innovative development of the country that emerge in the context of digitalization. Lack of government innovation affects not only the legislature but also law enforcement and national security. In response to the September 11, 2001 terrorist attack, the government spent billions of dollars and invented an "innovation" to create the Transportation Security Administration. Strategies for the development of information and innovation activities at the enterprise should be developed in the context of technological changes and contribute to future challenges and threats.

Businesses should take care of their own and general information security. All enterprises have programs for information and innovation development, but they need to be creative, capable of self-reproduction and dissemination in a way that has not yet been invented. One of the problems is to make public services much easier, more efficient and easier to use. Businesses need to be interested in finding answers to the common and significant challenges facing business executives today who need to develop completely new general principles for problem solving. You can borrow the idea from Silicon Valley and begin to consider governance as an operating system for society. If businesses manage to dramatically change the operating system, then everything will change with it.

6. Formation of the concept of an adequate and innovatively advanced information and innovation system

Technologies far outstrip the ability of business leaders to respond to the challenges of digitalization. Today, a truly adequate and innovatively advanced information and innovation system, based on the operating system, computerization and automation and implementation of innovations in production, is needed. It is about protecting our technological future and maintaining control over a multitude of devices. Those who control the codes can control our world - for good or for evil.

We live in exponential times, and we have to deal with new bioweapons, broken DNA and theft of genetic and biometric information, artificial intelligence that is easy to manipulate. In a world where all critical systems and infrastructures are run by computers, we need to take into account our technological insecurity, reduce our dependence on ubiquitous machines. Innovation cannot be stopped, and technological change is accelerating and accelerating. The Response and Quick Response window, which still exists, can be closed instantly.

Conclusions of the study

Over the next 30 years, the trend towards dematerialization, decentralization, concurrency, and the use of platforms and clouds will continue. As long as the cost of communications and computing is
declining as technology evolves. In our opinion, new communications technologies have become widespread in enterprises and organizations, which have become an important issue for management to address. The structure of an enterprise or organization should have a positive impact on the innovation process. The major role in this is played by the components and stages of the process of diffusion of innovation, the role of agents of change and the critical mass, capable of embodying innovation, the various types, properties and consequences of innovation, the directions of innovation in life.

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Стратегії розвитку інформаційно-інноваційної діяльності на підприємстві в умовах цифровізації

Анотація. Актуальність дослідження інформаційно-інноваційної діяльності на підприємстві не викликає сумнівів, тим більше, що ця тема розглядається в нових умовах цифровізації. Актуальність теми свідчить про те, що умови цифровізації мають велике практичне значення та наукову новизну, так як вони накладають новий відбиток на вирішення проблем сучасного підприємства. Мета дослідження – розкрити сутність і значення стратегій інформаційно-інноваційної діяльності на підприємстві в умовах цифровізації, яка сприяє виходу підприємства з кризи та досягнення його конкурентоспроможності. Завдання дослідження: проаналізувати напрями пришвидшення темпів упровадження нових стратегій розвитку інформаційно-інноваційної діяльності на підприємствах; вивести основні кількісні і якісні критерії розвитку даного виду діяльності; розкрити різновиди інновацій та напрям їх розвитку. Методи дослідження – системного аналізу і синтезу, синергетичного, методології складності, які дозволяють проаналізувати проблеми цифровізації щодо упровадження цифрових технологій, які радикально змінюють економічну культуру, соціум, саму людину. Результати дослідження: доведено, що нові способи використання цифрових технологій впливають на напрями стратегій інформаційно-інноваційної діяльності на підприємстві в умовах цифровізації; встановлено розвиток робототехнічного комплексу як стратегію розвитку інформаційно-інноваційної діяльності на підприємстві в умовах цифровізації та сформовано концепцію адекватної інноваційно передової інформаційно-інноваційної діяльності на підприємствах в умовах цифровізації.

Висновки. Слід використовувати найкращі традиції цифрового суспільства, представленого високоіндустріальними країнами, а також розширювати наукові знання цифрової економіки, як нового наукового напряму, що розвивається в умовах глобалізації, цифрової і технологічної революції, та постійно екстраполювати і упроваджувати в наше життя країн традиції цифрової економіки. Практичні рекомендації – розвивати та удосконалювати різноманітні стратегії розвитку інформаційно-інноваційної діяльності на підприємстві в умовах цифровізації інноваційної системи.

Ключові слова: стратегія, інформаційно-інноваційна діяльність, цифровізація, підприємство, цифрові технології, робототехніка
Свидетельствуют о новом отображении в решении проблем современного производства. **Цель исследования** — раскрыть сущность и значение стратегий информационно-инновационной деятельности на предприятии в условиях цифровизации, которая способствует выходу предприятия из кризиса и достижения его конкурентоспособности. **Задачи исследования**: проанализировать направления повышения темпов внедрения новых стратегий развития информационно-инновационной деятельности на предприятиях; выявить основные количественные и качественные критерии развития данного вида деятельности; раскрыть разновидности инноваций и направления их развития. Методы исследования — системного анализа и синтеза, синергетического метода, методологии сложности, которые позволяют проанализировать проблемы цифровизации относительно внедрения цифровых технологий, которые радикально изменяют экономическую культуру, социум, самого человека. Результаты исследования: доказано, что новые способы использования цифровых технологий влияют на направления стратегий информационно-инновационной деятельности на предприятии в условиях цифровизации; обосновано развитие робототехнического комплекса как стратегии развития информационно-инновационной деятельности на предприятии в условиях цифровизации и сформирована концепция адекватной и инновационной передовой информационно-инновационной деятельности на предприятиях в условиях цифровизации. Выводы. Следует использовать наилучшие традиции цифрового общества, представленного высокоиндустриальными странами, а также расширять научные знания цифровой экономики как нового научного направления, которое развивается в условиях глобализации, цифровой и технологической революции, и постоянно экстраполировать и внедрять в жизнь наши лучшие традиции цифровой экономики. Практические рекомендации — развивать и усовершенствовать разнообразные стратегии развития информационно-инновационной деятельности на предприятии в условиях цифровизации инновационной системы. **Ключевые слова**: стратегия, информационно-инновационная деятельность, цифровизация, предприятие, цифровые технологии, робототехника

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