

Innovative Development and Investment Advancement of Industrial Enterprises in Deriving Conditions of Digital Economy

Maksym Dubyna

Professor, Department of Finance,
Banking and Insurance,
Chernihiv Polytechnic National University,
95 Shevchenko Str., Chernihiv, Ukraine
.maksim-32@ukr.net

Lyudmila Verbivska

Associate Professor,
Department of Business and
HR Management,
Yuriy Fedkovych Chernivtsi
National University,
Chernivtsi, Ukraine.
l.verbivska@chnu.edu.ua

Olena Shyshkina

Associate Professor,
Department of Finance,
Banking and Insurance,
Chernihiv Polytechnic National University,
Chernihiv, Ukraine.
shyshkina.olena.v@gmail.com

Andrii Los

Doctoral candidate,
Department of Finance,
Banking and Insurance,
Chernihiv Polytechnic National
University, Chernihiv, Ukraine.
los2023sci@gmail.com

Yaroslav Fediai

Associate Professor,
Department of Finance,
Vasyl Stefanyk Precarpathian
National University,
Ivano-Frankivsk, Ukraine.
yfediai@gmail.com

Abstract

In the article, features by implementing innovative development and investment advancement in the activities of industrial enterprises within the digitalized national economy are researched. It can be stated that digital technologies are of priority in the process of the business' entities development. These technologies greatly influence the functioning of industrial enterprises that also determine the innovative development level. As part of the study, the essence and features of innovative development and investment advancement as a separate economic category were analyzed, and features of economic activity of industrial enterprises being integral subjects of economic development of any country were specified. This made it possible to further substantiate the specific features of ensuring their innovative development and investment advancement. To substantiate modern development of industrial enterprises in digitalization era, the main challenges of digital economy facing today these business entities were determined. The outlined also made it possible to specify the features of their digital transformation. The impossibility to ensure innovative development and investment advancement of the modern industrial enterprise without implementing measures for its digital transformation is found out in the article. Based on this attention was also paid to specify the directions for the intensified potential use of digital technologies by industrial enterprises in modern conditions of their activity.

Keywords: Digitization, Digital Economy, Industrial Enterprise, Digital Transformation, Innovative And Investment Development, Innovative Activity, Industry.

Introduction

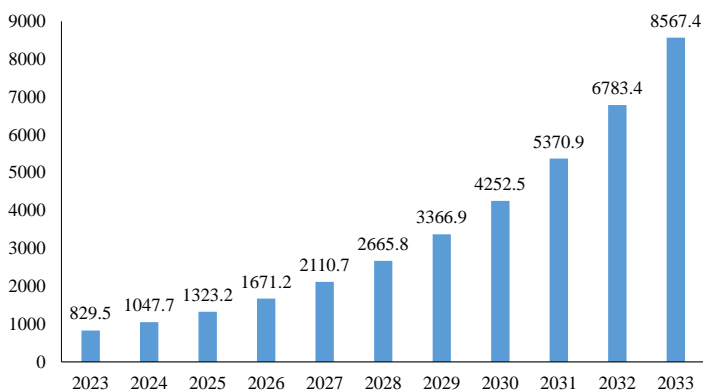
Industry development plays a significant role in ensuring economic development of any modern state. Experience of developed countries proves that without creating a strong industrial base, it is impossible to ensure conditions for significant growth of the national economy. Industry is a flagship of innovative development, a center where innovative products are created, it ensures prerequisites for innovative

renewal of the national economy and actually stimulates development of additional related economic sectors. It is relevant to pay attention to creation of favorable conditions for development of industrial enterprises today and these matters are constantly being studied by scientists in different countries.

In today's conditions, industrial enterprises develop being influences by many factors, among which digitalization is beginning to play a significant role. Reality shows that today these economic entities should also consider potential of digital technologies in their activities, implement mechanisms to create and adapt digital technologies in their work. This, in turn, plays a significant role to ensure competitiveness of industrial enterprises in the global markets of goods and services within digital economy formation.

Pace of development and use of digital technologies around the world is growing quite rapidly. Thus, according to the data presented in Fig. 1 by 2026, the digitization market will double, and by 2033, it is predicted to increase by more than ten times. This only proves that in the future the rate of involvement of economic entities in the digital world will only accelerate, and the use of digital technologies will definitely become indispensable for ensuring the innovative and investment development of industrial enterprises.

Figure 1. Global Digital Transformation Market, USD Billion



Source: <https://market.us/report/digital-transformation-market/>

Digitization is already an objective process that takes place, despite certain restrictions on the part of state authorities, the reluctance of economic subjects to join the digital world. Again, the experience of using digital technologies by industrial enterprises proves their importance both to ensure the growth of the competitiveness level of these business entities, and to create new innovative products and technologies, which in the future allow industrial enterprises to develop their own activities, develop new approaches to the creation and sale goods This points out to the relevance when using potential of modern information and communication technologies by industrial enterprises to create conditions for their innovative development. Therefore, the outlined updates the topic of the article.

Literature review

Research of innovative development and investment advancement of industrial enterprises within digitalization processes is carried out in publications of many scientists.

Within the limits of articles (Ivakhnenko A. et al., 2024; Trusova N. et al., 2023), approaches to the peculiarities of the introduction of innovations at enterprises and their investment support have been developed and substantiated. The authors proposed optimal criteria to determine investment potential of innovative activities of industrial enterprises. Scientists pointed out possible investment potential having in mind variable innovation cycles in the economic system of the enterprise.

The authors of articles (Junwei Shi et al., 2022; Yan Chen et al., 2021; Popelo O. et al., 2022; Ivanova N. et al., 2022) analyze impact of IT innovations on efficient operation of enterprises and possibilities to attract investments. Pace of cross-industry investments and their impact on innovative activity of enterprises, as well as the expediency of using AI tools to make investment decisions, were studied. The scientists proposed an algorithm to assess the innovative activity of enterprises and regions and studied innovative aspects by forming marketing strategies for the enterprises' development.

Practical significance of articles (Davydenko N. et al., 2024; Xu H. et al. 2024; Vovk O. et al., 2021; Popelo O. et al., 2021) includes study of the impact of modernization

processes on the innovative activity and competitiveness of enterprises. Moreover, the authors investigate the role of innovative development and investment advancement of enterprises to ensure appropriate level of financial security. Relationship between innovative development and involvement of modern digital technologies is also analyzed by scientists. It has been proven that quality of innovations implemented at the modern enterprises is being affected by digital technologies.

Studies (Berdar M. et al., 2024; Yanhui Chen et al., 2024; Tulchynska S. et al., 2021; Grigora?-Ichim C.E. et al., 2018) prove that investment and innovation are relevant and claim that they are a source of the enterprise competitiveness. Main problems of innovative development and investment advancement of enterprises considering the state of war in Ukraine are also analyzed by authors. Relationship between investments and innovations and financial outcomes of enterprises, is substantiated. Scientists emphasized urgency for state support to stimulate the outlined processes, and worked out strategies to activate innovative development and investment advancement of modern enterprises.

Objectives of research (Malysh I.A. et al., 2022; Boiko O. et al., 2021; Abramova A. et al., 2021; Nikiforov P. et al., 2022) are as follows: study of the European practice in e-commerce and specifics of the impact of regulatory policy on the development of public-private partnerships based on innovative development. The most influential negative factors affecting development of innovations and attraction of investments at enterprises have been identified. The authors proved expedient formation of clusters, which have a positive impact on innovative development and investment advancement of enterprises.

Scientists (Boiko . et al., 2021; Bradul A. et al., 2021) revealed existing problems and risks in innovative development and investment advancement of business, some solutions to overcome the outlined risks and problems were offered. Using systemic approach, institutional factors that contribute to innovative development are considered. Moreover, internal and external factors that have a direct impact on active innovation processes considering modern digital trends are analyzed by authors.

Research (Raquel Marína et al., 2023; Costa A.C.F. et al., 2024; Iastremska O. et al., 2024) is based on the analysis of the role of digitalization processes and intellectual component by creating and commercializing innovations at enterprises. Using empirical studies, urgency of digitization in the value chain of the enterprise has been proven. Authors studied possible innovations that ensure efficiency of industrial enterprises and consumer service. Ways of rational management of innovative processes at the enterprise were proposed, in addition, current opportunities provided by digital technologies have been considered.

Attention should also be paid to outcomes of studies (Roieva O. et al., 2023), within which the authors analyzed effective scenarios for rational use of resources and securing leading positions in the market due to innovative development and involved digital technologies. The authors carried out economic and statistical analysis of the main indicators of digitalization of Ukrainian enterprises and proposed means and tools to solve problematic aspects.

Notwithstanding a big number of available scientific works, where issues of innovative development and investment advancement of various enterprises, regions, and the national economy are considered, matter regarding the impact of digitalization of this development remain insufficiently studied. Formation of conditions for further innovative development of industrial enterprises based on active involvement of digital technologies in their own activities are poorly researched.

Methodology

To conduct research a set of methods was used. In particular, methods of content analysis and generalization were used to describe essence of innovative development and investment advancement and specify its features. Methods of abstraction and systematization substantiate the main specific features of functioning of industrial enterprises as separate subjects of economic activity. Development of industrial enterprises in modern conditions was studied based on features of ensuring innovative development and investment advancement. Using the above methods enabled to single out main challenges facing digital economy for development of industrial enterprises. Application of methods of

systematization, observation, induction and deduction allowed us to single out the main promising areas to ensure digital transformation of industrial enterprises.

Results

Stable operation of industrial enterprises can be secured by innovative development. Constant development of an economic entity and expansion of its economic activities is ensured by creation of new products and innovation. It is evident that to do this, these business entities must constantly look for sources of financial resources to ensure their own modernization, improvement of production processes, management systems at enterprises. Therefore, issues of ensuring own innovative development and investment advancement are always relevant and are constantly in the focus of attention of owners and managers of industrial enterprises.

At the same time, it has long been proven by scientists and historical experience in case of industrial enterprises that innovative activity is a mandatory element and an integral component to ensure stable development of these business entities, and their competitiveness. Accordingly, for their own survival in a highly competitive environment, invast majority of cases in the market economy, industrial enterprises must be engaged in innovative activities, or be involved in ready-made innovative solutions in their own work to increase their efficient functioning, optimize costs, and securerational use of natural resources.

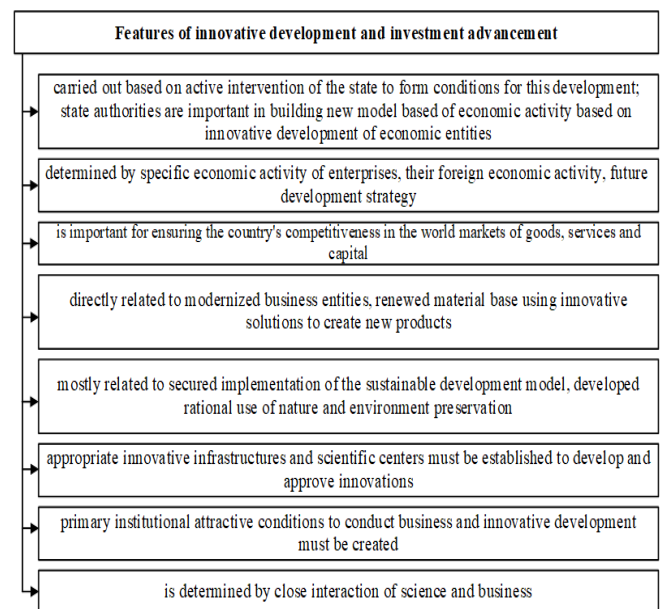
To substantiate peculiarities of innovative development and investment advancement of the industrial enterprise, a study of the essence of this type of economic development from will be conducted from the beginning.

As noted, in scientific literature today the category “innovative development and investment advancement” is used by scientists quite actively, studying the issue of finding new ways to accelerate innovative development of individual economic systems and new sources to fund this development with limited own financial resources. In general, innovative development and investment advancement can be characterized as qualitative changes in economic system, which are associated with introduction of new technologies, changes and approaches to

production, management and stimulation of economic activity, and are carried out based on the search for and attraction of investment resources insufficient amount to make this development long term.

Innovative development and investment advancement is characterized and distinguished by the type of economic activity of the enterprise. Their totality is presented in Fig. 2.

Figure 2. Features of innovative development and investment advancement



Source: systematized by the authors

Therefore, considering data presented in Fig. 2, it can be stated that in modern conditions innovative development and investment advancement of economic systems is connected with development and implementation of new technologies, innovations in all components of the industrial enterprise, individual economic systems of various levels and scales. It is quite clear that it is possible to ensure this development provided that there are favorable conditions for development of these technologies, support for their developers.

As already mentioned, innovative development and investment advancement is important for industrial enterprises and should be ensured by gradual implementation of the strategy of these enterprises. Today,

there are no alternatives for highly innovative industrial enterprises to ensure their own development, other than stimulating innovative activity, finding new ways to improve quality of goods, expanding their assortment, improving service, etc.

Taking into account specific features of economic activity of industrial enterprises, features to ensure their innovative development and investment advancement are determined, namely:

- obligatory investment of resources to support and develop production, research;
- required organized development and implementation of innovations in activity of the industrial enterprise, their import to use them for improvement of quality of goods and services;
- innovative development and investment advancement largely determines the competitiveness level of the industrial enterprise in the domestic and foreign markets of goods and services;
- obligatory consideration of a significant number of external and internal factors that can both positively and negatively affect activity of the industrial enterprise, its ability to attract investments in foreign markets, to sell its own products in different countries, to ensure cooperation with other industrial enterprises, state enterprises in terms of development of innovative technologies;
- urgent development of industrial enterprises in the framework of available effective state industrial policy in the country, which implementation allows stimulating development of highly innovative enterprises, ensuring a high competitiveness level;
- important role in innovative development and investment advancement of any industrial enterprise is played by their reputation, involvement in carrying out social and environmental projects, available certificates of product quality, management provided operating own brand and reputation;
- innovative development and investment advancement of the industrial enterprise is associated with a set of significant risks of economic activity, which assessment

and consideration is an integral part of the general strategy of the enterprise's development;

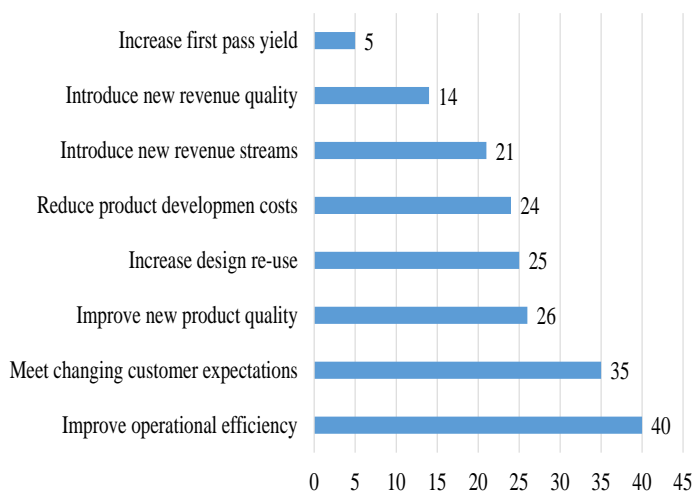
- realistic strategy and appropriate action plan is required to implement the model of innovative development and investment advancement of the industrial enterprise and to achieve its main goals;
- constant analysis of domestic and foreign experience in development and implementation of effective practices to increase the competitiveness level of similar industrial enterprises, assessment of experience of other business entities to implement various types of innovations is required;
- innovative development requires significant investment resources, and it is obvious difficult to introduce a significant number of different innovations at the same time, which requires a certain plan for modernization of both production and management system of the industrial enterprise;
- innovative development of the industrial enterprise is primarily related to implementation of long-term projects, which require significant financial resources and allows ensuring the increased efficiency in long-term perspective;
- to implement gradually a model of innovative development and investment advancement, it is sometimes advisable for the industrial enterprise to cooperate in its efforts with the same enterprises, to create joint ventures to develop complex and expensive innovations, primarily in production;
- developed system of relations with scientific institutions and higher education institutions is required to conduct joint research, implement practical testing of the results of such research, participate in training of future specialists.

For innovative development and investment advancement the industrial enterprise, issues of constant modernization of one's own activities always remain relevant. It is important to constantly search for innovations, under which the company will get an opportunity to increase the competitiveness level, expand sales markets, and achieve new successes in certain niches. In today's world, this

cannot be achieved without using potential of digital technologies.

Industrial enterprises are actively involved in development of digital technologies to use them in their own activities and sell them to other business entities. Mostly, they attract ready-made information innovations, focusing their attention exclusively on their production activities. In any case, digital technologies, as evidenced by experience of their use in activities of industrial enterprises, have positive effect on efficient work of these business entities. The results of the survey of business owners and their managers confirm this, since using these technologies really allows obtaining significant advantages and effects for business (Fig. 3).

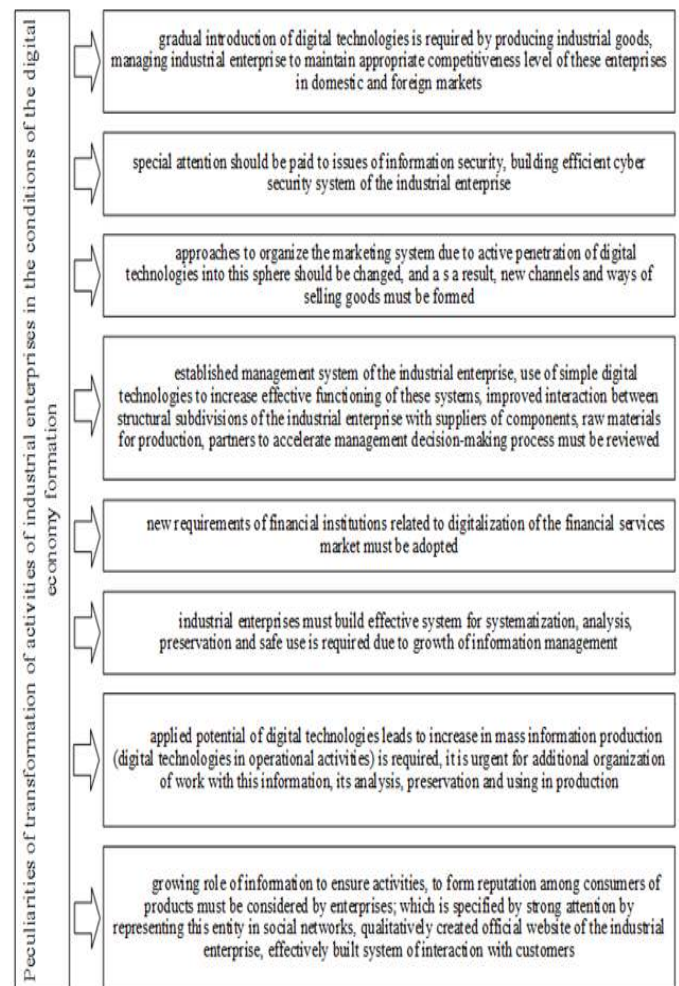
Figure 3. Top benefits of adopting a digital model



Source: <https://www.plantengineering.com/digital-transformation/>

Active development of digital economy in the world has created new challenges and tasks for industrial enterprises. Digitization is increasingly penetrating economic activity of all economic entities. Influence is especially relevant for industrial enterprises, since digital technologies allow optimizing production processes and ensuring increased efficiency of operations. In Fig. 4, information about new challenges for industrial enterprises, which are due to active use of digital technologies in impreconomic sphere, is presented.

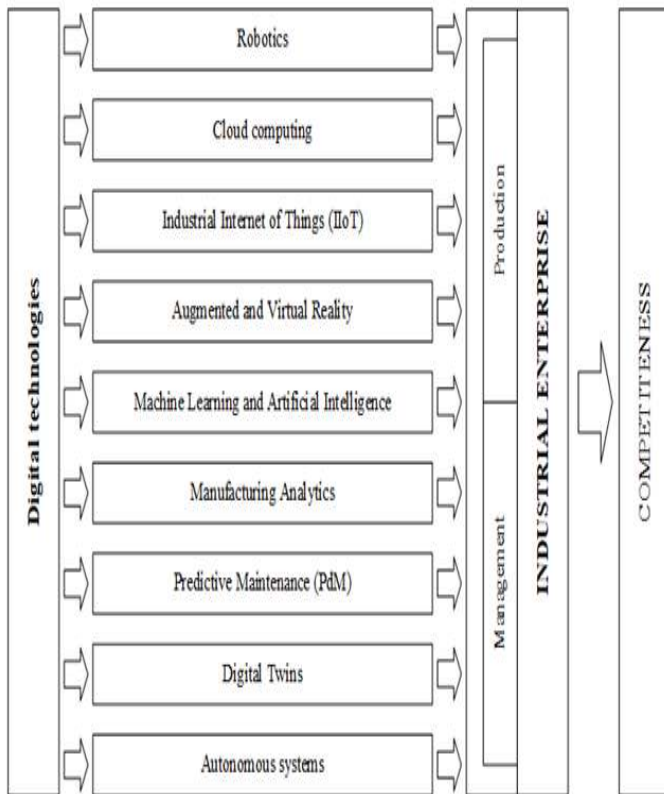
Figure 4. Features of transformation of industrial activities of enterprises in the conditions of the digital economy formation



Source: compiled by the authors

Today, industrial enterprises actively use various digital technologies in their activities. The most common among such technologies include the following: Internet of Things, Artificial Intelligence, Cloud Technologies, Data Analysis technologies and others. The specifics of application of such technologies are determined by characteristics of economic activity of the industrial enterprise. Within highly innovative industrial enterprises today, combined digital technologies are used, which are already integral components of production process itself. Moreover, industrial enterprises give important role to automated processes, use of robots, where it is expedient from the economic point of view (Fig. 5).

Figure 5. Digital technologies used by industrial enterprises in their activities



Source: <https://www.plantengineering.com/digital-transformation/>

Of course, digitalization contributes to innovative development and investment advancement of industrial enterprises, due to this fact, introduction of information and communication technologies into their activities will continue to take place at a fairly fast pace. To speed up this process, in our opinion, these business entities should do the following:

- change the development strategy of the industrial enterprise in terms of its adaptation to modern challenges created by digital economy;
- conduct a detailed analysis of production systems, management of the industrial enterprise and determine the possibilities of using digital technologies in the future;
- deepen interaction with partners, counterparties, partly competitors to develop innovations, technologies and their further introduction into production; it is

especially important in those areas where it is economically and organizationally quite difficult to independently ensure creation of innovations;

- attention should be also paid to the need to deepen cooperation with scientific institutions, higher education institutions, to consider possible creation of separate departments in the structure of the industrial enterprise that would be engaged in the development of innovative products for their further introduction into production, management system;
- change approaches to involved innovative technologies in activities of the industrial enterprise, focusing more attention on possibilities of using existing innovative technologies, searching for startups that are engaged in development of those innovations that can be useful to increase competitiveness of the industrial enterprise;
- change established system of improving qualifications of employees, implementing retraining systems to expand digital competences;
- try creating conditions for formation and development of the digital infrastructure within the industrial enterprise, creation of appropriate structural divisions to construct effectively operating systems of information security, cyber protection;
- consider possible financing of new start-up projects as investors, which will positively affect reputation of the industrial enterprise and allow attracting the best innovations for further implementation in its own activities;
- study more deeply experience of other industrial enterprises regarding organization of production, management system using digital technologies;
- experts in the analysis of the state of innovative development and investment advancement of the industrial enterprise to find those areas that are potentially economically attractive for further development;
- contribute to creation of a favorable space for development of innovative culture, quality assessment of ideas, recommendations, firstly, to employees of the industrial enterprise, heads of individual structural

units, regarding possible directions to increase efficiency of its activity, which is important to ensure innovative development and investment advancement of any industrial enterprise.

The outlined areas of implementation of digital technologies in operation industrial enterprises are certainly not exhaustive, they can be supplemented. The very process of digitization of industrial enterprises is a complex process that can be organized solely by involving employees in implementing new changes, revising the strategy of development of industrial enterprises, and adapting it to the new requirements of the digital world. Implementation of any innovation in the work of the industrial enterprise must be accompanied by assessment of the results that can be obtained through its use. This is important, given that financial capabilities of industrial enterprises are limited, and their main function is to generate income for their owners.

Conclusions

Therefore, within the framework of the article, a study of features to ensure innovative development and investment advancement of industrial enterprises was carried out in the conditions of the digital economy formation. Considerable attention was paid to research of theoretical provisions of innovative development and investment advancement, substantiation of its essence and features of provision for various economic systems. It has been established that future development of such systems requires simultaneous combination of searching investment resources and stimulation of innovative activity.

In the article, formation of conditions for innovative development and investment advancement of industrial enterprises is researched, which form the basis for their innovative development in many developed countries of the world. It is substantiated that ensuring this development requires implementation of effective mechanisms for search, development and adaptation of innovations in production sphere, use of effective approaches to improve quality of management of industrial enterprises.

A detailed examination of specific features of digital economy, which today is actively developing all over the

world, made it possible to single out new challenges that exist to ensure further stable innovative development and investment advancement of industrial enterprises in digital world. It has been established that without digital technologies it is impossible to ensure high level of competitiveness of any industrial enterprise in modern conditions. That is why owners and managers of most of such business entities should pay considerable attention to the issue of digital transformation of their own business today. This will allow in the future creating conditions for qualitative modernization of production and expansion of economic activity.

Study of specific features of economic activity of industrial enterprises, analysis of current trends in digitalization of the industrial sector made it possible to single out actual directions to activate digital transformation of industrial enterprises. Implementation of such areas will make it possible to gradually use potential of digital technologies to increase efficiency of one's own activities, to form the basis for further development of such enterprises.

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