

**II International Scientific Conference GCPMED 2019  
"Global Challenges and Prospects of the Modern Economic Development"****ENTREPRENEURIAL ACTIVITY IN THE PHARMACEUTICAL  
INDUSTRY UNDER DIGITAL ECONOMY CONDITIONS**

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***Abstract***

The implementation of entrepreneurial activity in the context of digital economy determines directions for the development of various enterprises and industries. For the effective implementation of the own economic activity, it is required to correspond to current tendencies in the market. The pharmaceutical industry is one of the priority sectors from the state perspective. Special attention has been always paid to the quality of products produced at pharmaceutical enterprises, and the quality issue is also important while using modern digital technologies in the production process. The digitalization sets new questions and tasks in this area. The author considers the importance of digitalization for the pharmaceutical industry, the main directions of the application of digital technologies in this sphere from the point of view of production chain stages, as well as the main results that can be achieved if activities are carried out in accordance with the actual market trends. The main purpose of this research is to study functioning peculiarities of the pharmaceutical industry in the digital economy context. According to the research results, it is concluded that the production processes of the pharmaceutical industry have undergone digitalization significantly. The author emphasized the fact that digitalization is important not only for the production stage, but also for all other stages of the production chain.

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## **1. Introduction**

The implementation of the entrepreneurial activity in the digital economy conditions is a topical issue for enterprises of all industries. This is due to the fact that the digital economy has an impact not only on individual components of the economic system, but also on the economy as a whole. Under the digital influence are the management aspects of the enterprises' functioning, scientific component, economic security and other types of security.

Digitalization of the economy contributes to the application of new technologies and processes in the life cycle of enterprises. All this contributes to its further development, obtaining necessary effects for the realization of the own potential of enterprises in the global economy.

## **2. Problem Statement**

The pharmaceutical industry is one of the priority sectors of the economy. This fact is determined by the link between the efficiency of this industry functioning and the level of health and quality of life of the population. Therefore, the importance of adapting business activities in this industry to requirements of the digital economy is a strategic task.

## **3. Research Questions**

The issues on digitalization of business activity in the pharmaceutical industry were studied by many foreign and Russian scientists (Geissinger, Laurell, Sandström, Eriksson, & Nykvist, 2019; Jirásek, 2017; Kraus, Roig-Tierno, & Bouncken, 2019; Niño-Amézquita, Legotin, & Barbakov, 2017; Andosova, 2019; Ivanova, Poltarykhin, Szromnik, & Anichkina, 2019; Yalmaev, Shalaev, Giyazov, & Tashkulova, 2020; Evstratov, Ezangina, & Novozhenina, 2019, and others). The main questions posed by these authors are the importance of rapid digitalization of the industry, prerequisites for its implementation and possible consequences of such a modernization. The answers to these questions enable to confirm the relevance of the topic and identify areas for its further development.

## **4. Purpose of the Study**

The purpose of this study is to analyze specific features of pharmaceutical industry functioning in the digital economy conditions. In the course of the study, it is necessary to get answers to the previously mentioned questions, as well as consider the current state of the pharmaceutical industry market. The answers to these questions will allow drawing conclusions about possible development directions of the pharmaceutical industry.

## **5. Research Methods**

The author uses methods of analysis, synthesis, and comparison of the obtained information. These methods are theoretical and the most applicable for this study. Normative documents related to the topic of this research were also studied and analyzed. So, it was possible to consider different points of view and approaches to the research issues.

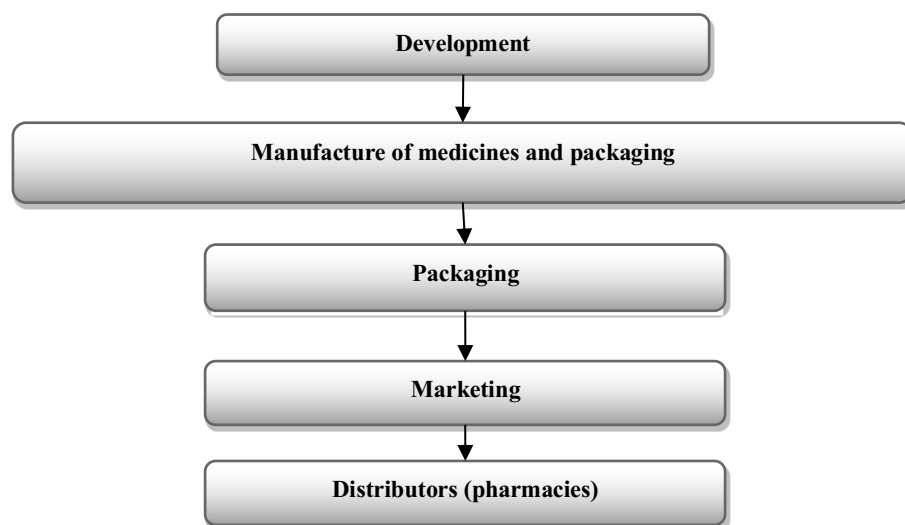
## 6. Findings

In the context of digital economy, one of the main conditions (from the point of view of business survival) is the application of innovative information technologies into business activities. Digitalization of entrepreneurship in the pharmaceutical industry determines factors for maintaining the competitiveness of pharmaceutical enterprises and their further innovative development.

The pharmaceutical industry is a branch that relies heavily on regulators. The necessary direction for its development is usually determined by the state structures. In this case, the pharmaceutical industry must act in accordance with the instructions of higher authorities. At the same time, the growing digital transformation of the economy sets new directions and requirements for the application of new technologies in different spheres. As it was noted by researchers of this industry, digital technologies (Big Data, Blockchain, Smart manufacturing etc.) enable to create favorable conditions in the pharmaceutical sphere in terms of resource optimization and the realization of digital modernization (TASS, 2018).

One of the main trends of the industry, which is currently leading, is the automation of business processes and key business functions of pharmaceutical companies. These functions include ensuring the safe production of medicines, forecasting demand, and ensuring information transparency of supply chains. An important mechanism that determines trends to change the marketing strategy of pharmaceutical enterprises is the development of the Internet commerce. In this case, there is a transition from the use of traditional marketing tools towards digital marketing. The issues of marking and tracking of manufactured goods in order to avoid the usage of counterfeit medicines, i.e. 'track and trace' issues, remain of great importance at present.

We can consider pharmaceutical industry functioning in the digital economy conditions at several stages of the production chain. In general, the production chain in the pharmaceutical industry can be seen in figure 01.



**Figure 01.** Production chain in the pharmaceutical industry

Enterprises directly or indirectly involved in health issues should ensure the development of their industry to a greater extent than any other. On the one hand, their activities are regulated by the state,

which obliges the industry to take into account its interests when making decisions or applying new technologies. On the other hand, these enterprises often get support from the state.

To ensure the full integration of the pharmaceutical industry into the modern economic realities caused primarily by the transition to the digital economy, it is important to work at all stages of the production chain. An integrated approach is of great importance. The application of innovative digital technologies at individual stages cannot provide the desired effect to the necessary extent. In this regard, the question arises, what modernization is necessary to realize in the enterprises' activities at each stage of the production chain, so that the synergistic effect reaches the desired scale and allows enterprises to operate successfully in the digital economy conditions. To solve this task, the author considered the most relevant digitalization areas which can be applied in the pharmaceutical industry (table 01).

**Table 01.** Directions of the entrepreneurship digitalization in the pharmaceutical industry at individual production stages

<b>Production stage</b>	<b>Digitalization direction</b>
Development	The usage of innovative equipment in the development of drugs, the application of systems for the development of databases.
Production	The usage of digital control systems over the movement of manufactured products within the enterprise, as well as systems for monitoring breakdowns and equipment downtime.
Packaging	Automation of packaging processes aimed at speeding up and reducing costs.
Marketing	The usage of Internet resources and social networks to promote medicines and pharmacies of specific manufacturers and networks.
Distribution	The usage of digital systems for forecasting and analytics of sales volumes, application of electronic systems for accounting the performance of enterprises of the same network.

At the development stage, the usage of information systems (electronic databases) is necessary for the rapid search of available patented drugs, which can be a prototype of drugs that are being developed, or, for example, can give serious adverse reactions when they are used together. This will significantly contribute to improving the competitiveness of products.

At the production stage, digital technologies may provide an efficiency assessment for the usage of production facilities at the enterprise. With their help we can also assess production reserves and control the continuity of production lines. This issue is relevant for manufacturers who have wide markets and high sales volumes, and issues of the production suspension are critical for them. As for the automation of packaging processes, there is a common goal of accelerating production and reducing costs, which allows manufacturers to create at this stage a greater amount of added value. Competent use of digital technologies at the marketing stage can provide a significant advantage over competitors. The usage of contextual advertising can increase the demand for products of a particular manufacturer. It is important to develop a marketing strategy that will be implemented with digital tools.

Speaking about the distribution stage, it should be noted that the importance of digitalization of its processes can be viewed from two sides. First of all, the modernization of the production processes in the pharmaceutical industry in the direction of digitalization will ensure the transparency of the medicines

movement chain. This aspect is interesting not only for buyers, but also for manufacturers. It is important for buyers to understand that they are buying original, high-quality medicine. For manufacturers, it is important to maintain and increase customers' loyalty to their brand while ensuring the industry transparency, which will lead to an increase in sales volumes. Further, it should be noted that digitalization is able to provide a high degree of automation of the industry, forecasting sales volumes, as well as analyzing data on purchases and storage of pharmaceutical products.

## 7. Conclusion

According to the research results, it can be concluded that the pharmaceutical industry is one of the most priority and demanding sectors of the country's economy. The transition to the digital economy requires the modernization of all its key industries in order to ensure the efficiency of their functioning. At the moment, the pharmaceutical industry has undergone digitalization, first of all, it influences production processes to a greater extent. However, it is important to understand the importance of digitalization not only at this stage of the production chain, but also at other ones. Only by modernizing all the processes through which the pharmaceutical product passes before reaching the final consumer, we can talk about the success of the adaptability of this industry to the digital economy conditions.

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