The European Proceedings of
Social & Behavioural Sciences
EpSBS

ISSN: 2357-1330

https://doi.org/10.15405/epsbs.2019.12.05.64

MTSDT 2019

Modern Tools for Sustainable Development of Territories. Special Topic: Project Management in the Regions of Russia

TRANSFORMATION OF THE BUSINESS MODEL OF RESERVE MANAGEMENT UNDER DIGITALIZATION

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Abstract

The article is devoted to the transformation of the business model of enterprise inventory management during the formation and development of the digital economy of Russia. There is a need to transform the existing business model of inventory management of organizations and enterprises of all levels, regardless of their legal form, type and scale of activity. In the context of the globalization of the trading environment and increased competition, on the one hand, and a dynamic change in consumer preferences, on the other hand, supply chains are becoming more complex, which inevitably affects the logistics processes of the enterprise, the implementation of which requires analysis of a large amount of information, better assessment and analysis when making logistic decisions. Therefore, the digitalization of logistics is becoming an essential component of the successful development of the enterprise. And given the fact that the largest share in logistics costs is spent on the formation and maintenance of the stock, there is a need to transform the existing business model of inventory management to the conditions of the digital economy. This article identifies the main trends in the development of the digital economy in Russia, as well as signs of the transformation of the business model of inventory management in the context of digitalization. Moreover, the digitalization of the enterprise's inventory management system is not just the use of new technologies in this process, but the construction of a fundamentally new business system based on the use of digital space.

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Keywords: Digital economy, digital logistics, inventory management business model.

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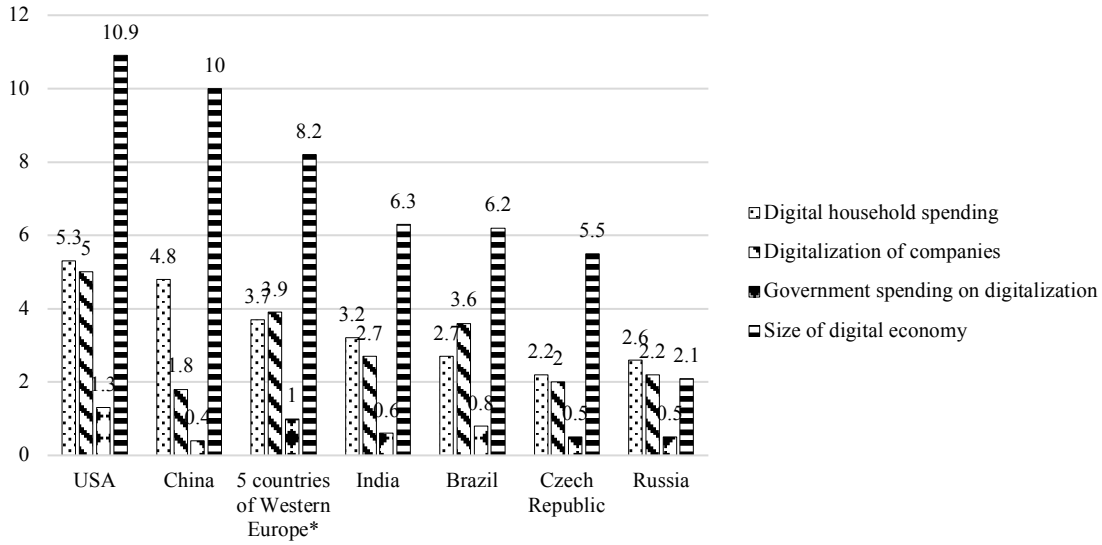
eISSN: 2357-1330

1. Introduction

The further development of Russia and the strengthening of its position in the world arena is largely determined by the digitalization of its economy. It is this circumstance that will allow our country not only to withstand the competitive struggle in the world economy, but will ensure its national security and economic growth. In this regard, on July 28, 2017, the Government of the Russian Federation adopted a program for the development of the digital economy. The program defines the vector of strategic development of the country until 2025. The state has committed itself to creating technical and financial conditions that will ensure the speedy development of the national digital economy for its successful implementation. But the implementation of the adopted program requires close cooperation between the state, business, the scientific community and members of the public. In this regard, it is extremely important to organize communication platforms that provide real communication for all parties interested in the development of the digital economy (Nosova, Norkina, Makar, Arakelova, Medvedeva, & Chaplyuk, 2018).

At the same time, the digital contribution to the country's GDP is still not large enough and amounts to just over 2%, whereas in the leading countries the contribution of this sector to GDP exceeds 8% in terms of digitalization of the economy (Figure 01).



* – Great Britain, Germany, Italy, France, Sweden

Figure 01. Contribution of the digital economy to the GDP of some countries of the world (% of GDP) (Kapranova, 2018)

Russia has opportunities for a breakthrough in this direction. In addition, it can take some of the experience of the so-called Asian course on digitalization of the economy. According to available estimates, this could ensure an increase in the share of the Russian digital economy in GDP by up to 5.6% by 2020 at the projected European level of 7.5%.

Achievement of the goals predetermines the need to search for the theoretical justification of digital innovations, develop competencies and fundamental principles.

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2. Problem Statement

In the literature the digital economy is identified with the electronic (Internet, web) economy and is considered as an economic activity based on the use of digital technologies.

The view is expressed that the digital economy is a product of convergent technologies, including nano, bio, information, communication and cognitive ones.

A number of scientists associate the emergence of the digital economy with the transformation of the world economy in the early 1990s. and computer science ideas about the transition from "atomic motion to bit motions". They talk about the shortcomings of classical markets and goods and the advantages that they will gain in the digital economy – the lack of weight of goods, virtuality, instant movement of goods, etc.

The digital economy is characterized as the sphere of Internet business (online business); new technological structure of the world; operating system for using external software products; as the economics of software applications – API economics (application programming interface) (Nikulin, 2018).

Logistics is a part of the country's economic system, and the planned profound changes in economic life will inevitably affect both it as a whole and its most important part, such as inventory management in particular (Ryzhkova & Marchenko, 2010).

Logistics refers to areas of systemic importance for the development of the country's economy as a whole. Digital technologies are becoming an integral attribute of the activities of logistics companies and their partners. The boundaries between the participants of the supply chain are being destroyed, the integration of enterprises and digital platforms, the physical and virtual worlds is taking place.

In the digital economy, data in digital form becomes a key factor in production and affects the formation of logistics processes in general and inventory management in particular.

3. Research Questions

The search for the optimal business model of enterprise inventory management has long been conducted by scientists, researchers and entrepreneurs of different ages. The economic growth of enterprises depends on effective stockpile management. This explains the fact that a large number of studies, both Russian and foreign, are devoted to the issues of building an effective inventory management system. As the economy developed, the attitude of specialists towards building this business model also changed. Modern realities present new requirements for it. Digitalization of the global space necessitates the transformation of the existing business model of organization inventory. New approaches to their optimization appear. But a single business model does not yet exist. Therefore, there is a need to build this business model and determine its main features.

4. Purpose of the Study

The purpose of the study is to consider the transformation of the existing business model of enterprise inventory management in the context of the development of the country's digital economy. During the period of widespread digitalization and the construction of a single digital space, the

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requirements for control systems of any level are changing. A large amount of information transmitted, the active development of Internet commerce present new requirements for the logistics system of inventory management. Therefore, it is imperative to identify the main features of a fundamentally new business model of enterprise inventory management.

5. Research Methods

The study conducted in the work is based on the study of the experience of Russian and foreign scientists in the management of enterprise reserves and their optimization. A systematic approach to research was used, as well as deductive and inductive methods of cognition in summarizing the results obtained. The basis for the study was the FSSS statistics, as well as the results of a study conducted by the American Productivity & Quality Center.

6. Findings

In modern conditions, increasing the effectiveness of the organization is determined not so much by the growth of its profits, but by a reduction in costs. Due to the fact that most of the costs of the enterprise are stocks, their optimization is of great importance (Inegbedion, Eze, Asaleye, & Lawal, 2019).

This is because, according to experts, up to 70% of the organization's assets are immobilized in stocks (Proença, Arruda, & Pacheco, 2018). And their proper optimization can lead to their rational structuring (reduction in the share of illiquid stocks and an increase in the share of quick-selling goods), which will lead to a reduction in lost profits and an increase in capital turnover (Voronkova, 2016). At the same time, the release of frozen capital stocks is a key factor that can affect competition. Проведенные American Productivity & Quality Center studies suggest that rational inventory optimization can reduce enterprise costs by more than 3 times (Figure 02).

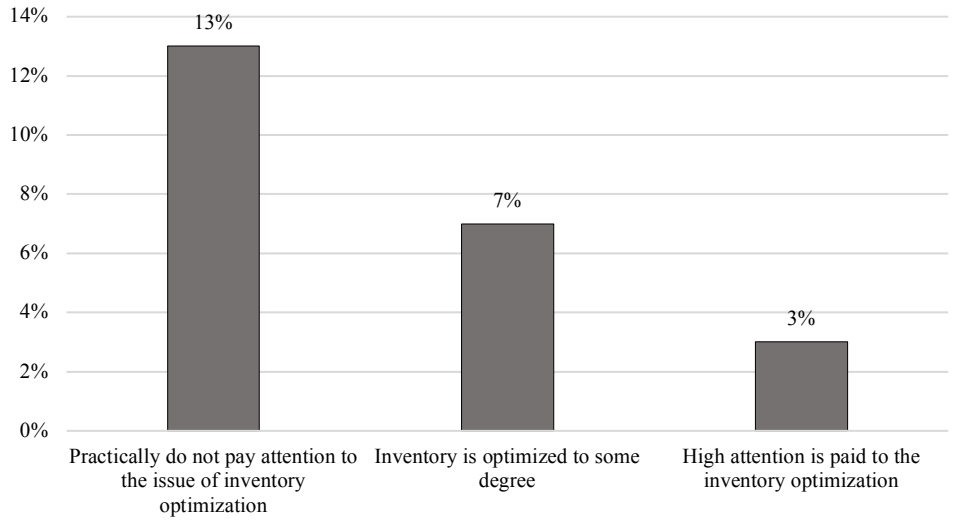

Figure 02. The cost of stocks depending on the level of attention to their optimization, in % of turnover

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In these conditions, the optimization of the enterprise's inventory management system provides for the construction of a fundamentally new business model. At the same time, the following main signs of transformation of this inventory management business model can be distinguished.

First of all, this model is characterized by product digitalization. In other words, while maintaining their material form, products are shifted to digital form. This means the impossibility of using this product without digital accompaniment. For example, an electronic product model is created, which becomes the basis of its production, service and use. In addition, this digital model may become the basis for the emergence of new services, which will also be digital in nature.

Secondly, there is a digitalization of the value chain management process as part of the digital business model of inventory management. The logistics system integrates into the digital space created by other participants in this process, joins it and becomes a single whole. This, in turn, puts forward new challenges in managing the creation of a value chain at the level of not a specific organization, but the entire digital space. Moreover, each element, each enterprise of this digital space is an independent, but necessary link, without which the creation of a value chain becomes impossible or, at least, loses its significance. This sets new requirements for the logistics system, which should not only monitor and coordinate its operations, but also effectively interact with each participant in the digital space, creating a value chain. On the one hand, the digital business model of inventory management specializes more and more, and, on the other, it integrates more and more all value chain creation systems into a common model and digital space. At the same time, integration can occur by various methods, including by creating an electronic model of the product, developing plans for coordinating the actions of participants in the digital space. As a result of such actions, most of the inventory management operations are transferred to digital services (demand forecasting, analytics of the existing stock level, work with suppliers, order formation, etc.). Thus, new business models of inventory management appear, integrated into a common digital space and based on the use of digital technologies.

Thirdly, there is a complication of the information space in which inventory management is carried out. The new information space opens up new opportunities for the logistics system, going far beyond its borders and covering all participants in the logistics process. This, on the one hand, provides the participants of the logistic process with a large amount of information, on the basis of which it is possible to carry out analytical and forecast estimates on inventory management, but, on the other hand, complicates this process. This is because the information received becomes qualitatively more complex in itself, new chains of links appear in this information space, which complicates the process of processing it and requires serious software products, which means huge expenses.

Another distinctive feature of the modern organization's digital inventory management business model is the growing role of corporate knowledge. The complication and expansion of the information space, the digitalization of the value chain management process, product digitalization, present new requirements for the competencies, knowledge, skills of the logistics system employees. In the context of digitalization, information technology is becoming an integral part of the inventory management process of any organization. It is difficult to cope with this process without appropriate knowledge. Moreover, the world does not stand still. Digitalization contributes to the constant updating of software and information technology, which makes it necessary to constantly improve the competencies of employees and improve

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their skills. Most of the managers of large enterprises note a lack of qualified personnel capable of working effectively in the digital economy. This is one of the obstacles that hinder the process of informatization.

It is also necessary to note such a feature of the digital business model of inventory management as the presence of a corporate culture, which is based on an innovative approach, including to the enterprise inventory management process. In conditions of constant, dynamic changes, the logistics system will not be able to survive if any of its parts does not take into account these changes and constantly adapt to them. Only focusing on an innovative approach will allow the logistics system to stay afloat and take a leading position in the competition.

The most important feature of the digital business model of inventory management is its robotization. Digitalization is gradually replacing manual labor, replacing it with the work of intelligent robots capable of learning. Already now there are warehouse complexes where the inventory management process is fully automated, from the acceptance of goods to the warehouse and ending with its delivery to the client. The role of the human factor is minimized. Robots are gradually replacing manual labor from the logistics system, fully mechanizing the logistics processes and operations. On the one hand, this speeds up the inventory management process, improves its quality, and reduces costs. On the other hand, the automation of the inventory management system requires enormous costs, and leads to a reduction in jobs (Lubnina Shinkevich, Yalunina, Gaidamashko, Savderova, & Komissarova, 2018).

Thus, the digitalization of economic processes poses new requirements for the logistics system and contributes to the construction of new business models of enterprise inventory management (Skovoroda, 2017). This process has several advantages for organizations. In particular, there is a reduction in transaction costs, which form an essential part in the inventory management system. The use of information and communication technologies allows speeding up the process of coordination of actions between participants in the logistics process, excluding certain operations associated with the execution of deliveries, which ultimately reduces not only the transaction costs of the enterprise, but also the logistics costs as a whole.

Active use of information resources reduces the risk of uncertainty. Digitalization allows receiving information in real time. When a buyer pays for goods at the checkout, information about this product is immediately reflected in the analytical data of the enterprise, which allows monitoring inventory levels, product demand quickly and making quick, high-quality, effective decisions on inventory management (Zinoviva, Suhina, & Koroleva, 2019). An example of such a digital model is the Russian startup SYNGERA, which is based on the use of the SIMPLATE technology platform. This platform allows analyzing a large array of data around the clock. This contributes to the implementation and use of a customer-oriented approach based on the maximum consideration of the changing needs of customers. The methods and tools used within the framework of this platform are able to process and structure big data, which makes it possible to coordinate the supply chain by transferring management decisions to a computer program.

The process of registration and delivery of goods is accelerated, its quality is increased and deficit costs are reduced. Work in real time, informatization of the inventory management process, its automation allows transferring data to suppliers of goods immediately. As soon as the goods are paid by

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the buyer at the checkout, the supplier has already received evidence that the product has left the enterprise and the inventory level has been reduced. This allows timely creating a purchase order, which reduces the risk of shortages. The concept of online data collection or the concept of Vendor Managed Inventory Management (VMI) has existed for a long time, but only with the development of the digital economy did it gain wide opportunities. The essence of this concept is that it is not the organization itself that controls the level of stock in the enterprise, I am its supplier. At the same time, this management becomes relevant only if it receives information as quickly as possible. And this is facilitated by digitalization. Now almost all large trading and manufacturing enterprises are equipped with specialized devices that allow reading the barcode of goods. In this regard, information on goods received and sold is received in real time and there is no difficulty in sending it to anywhere in the world. This allows timely starting the process of production and delivery of the necessary goods or raw materials, as well as further actions for its delivery to the enterprise. Moreover, modern information technology allows tracking not only the level of stock and form an order, but also providing access to information about the delivery process of the desired product. Currently, most vehicles are equipped with GPS-navigators, and the products transported in them have RFID tags. All this improves the quality of delivery of goods to the desired consumer and contributes to more efficient inventory management.

7. Conclusion

Modern conditions for the development of the global economy, its digitalization present new requirements for the organization and its logistics system. The existing transformations in the information space and the active use of information technologies contribute to the consciousness of a fundamentally new business model of inventory management. This digital business model transforms the supply chain from the moment of ordering the goods to the moment they are received by the end user. Thanks to informatization, this process becomes more interconnected, flexible, efficient, sustainable and customer-oriented. All this helps to increase the efficiency of the logistics system and its strengthening in the market of goods and services.

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