MINISTRY OF EDUCATION
OF BELARUS
POLOTSK STATE UNIVERSITY

EUROPEAN
& NATIONAL
DIMENSION
IN RESEARCH

ECONOMICS

Electronic collected materials
of XIII Junior Researchers' Conference
(Novopolotsk, 17 - 21, 2021)

Novopolotsk
2021

MINISTRY OF EDUCATION OF BELARUS

Polotsk State University

EUROPEAN AND NATIONAL DIMENSION IN RESEARCH

ECONOMICS

Electronic collected materials of XIII Junior Researchers' Conference
(Novopolotsk, May 17 – 21, 2021)

Обновляется 1 раз в год

Novopolotsk
Polotsk State University
2021

UDC 082

EUROPEAN AND NATIONAL DIMENSION IN RESEARCH. ECONOMICS = ЕВРОПЕЙСКИЙ И НАЦИОНАЛЬНЫЙ КОНТЕКСТЫ В НАУЧНЫХ ИССЛЕДОВАНИЯХ. ЭКОНОМИКА : Electronic collected materials of XIII Junior Researchers' Conference, Novopolotsk, May 17-21, 2021 / Polotsk State University ; ed. Yu. Holubeu [et al.]. – Novopolotsk : PSU, 2021. – 1 CD-ROM.

Издается с 2017 года (в печатном виде – с 2009 г.).

Сборник включен в Государственный регистр информационного ресурса. Регистрационное свидетельство № 3061711556 от 17.04.2017 г.

Первые два печатных издания вышли под заглавием «Материалы конференции молодых ученых», третье – «Европейский и национальный контексты в научных исследованиях» в 3 томах: «Гуманитарные науки», «Экономика» и «Технология».

В настоящем электронном сборнике «Европейский и национальный контексты в научных исследованиях. Экономика» представлены работы молодых ученых по экономическим наукам.

Предназначены для работников образования, науки и производства. Будут полезны студентам, магистрантам и аспирантам университетов.

The first two conferences were issued under the heading "Materials of junior researchers' conference", the third – "European and national dimension in research" in 3 parts: "Humanities", "Economics", "Technology".

In this Electronic collected materials "European and national dimension in research. Economics" works in the fields of economics are presented.

It is intended for trainers, researchers and professionals. It can be useful for university graduate and post-graduate students.

211440, ул. Блохина, 29, г. Новополоцк,
Тел. 8 (0214) 50-57-09, e-mail: inter.office.psu@gmail.com

Технический редактор Прадидова Анастасия Андреевна
Компьютерная верстка Прадидовой Анастасии Андреевны
Компьютерный дизайн обложки Мухоморовой Марии Сергеевны

№ госрегистрации 3061711556.
ISBN 978-985-531-750-1

ECONOMICS

UDC 005.932(476)

LEAN PRODUCTION CONCEPT AND OPPORTUNITIES FOR ITS IMPLEMENTATION IN THE REPUBLIC OF BELARUS

E. SEMASHKO, A. ZINEVICH
Belarusian National Technical University, Minsk, Belarus

Implementation of lean production concept is carried out at industrial companies in many developed and developing countries of the world community. The Republic of Belarus is no exception: the tools and methods of lean production are used with great success in our companies.

Introduction. Today, in the conditions of fast development of market relations and high competition, it is extremely important to introduce a technology or system that would be able to minimize and possibly even avoid various types of losses associated with production [1]. Such system exists and is called "Lean Production" [2]. Lean production is a real method of optimizing production activities. The main creator of Lean production is Taiichi Ono, that introduced the concept in the Japanese company Toyota Motor Corporation in the 50s of the last century [3]. Lean production is used in many European countries and in the United States of America – both in the production and non-production areas. In recent years, there have been successful attempts to implement the Lean Production concept at the industrial enterprises of the Republic of Belarus.

Results, their discussion and perspectives. The Lean Production concept helps to increase the importance of the product at each stage of production. Thanks to this, it is possible to make the final price significantly less, which makes the company more competitive in the market. Thus it is advisable to use various lean production tools at Belarusian enterprises in different industries in order to expand their market opportunities.

The analysis of methods, technologies and tools for implementing the system is essential. Based on its results, in the future, you can use your own experience to look for ways of improving the competitiveness of the enterprise, reducing its losses, as well as increasing productivity both at this enterprise and by other business entities of the Republic of Belarus.

Today there are already enterprises in Belarus that were the first to implement the Lean Production micrologistic system and at the same time achieved an improvement in the values of economic indicators, which evidevce the effectiveness of this concept.

An example of the introduction of new production organization technologies is the Management Company of the Belkommunmash Holding, a leading manufacturer of urban electric transport rolling stock in Belarus and the CIS countries [4]. The main goal of the project was to minimize the production costs and the time required to create the final product, while maintaining the high quality of the product and observing the guaranteed delivery times. The company's interim goals were to increase production volumes (from 45 to 60 units per month); reducing the duration of the production cycle by 40%, increasing the turnover of working capital (from 170 to 60-70 days); optimizing the level of capacity utilization [5]. As a result, the use of lean production tools helped to reduce the duration of the production cycle, as well as reduce defects – by half. Finally, financial savings at the enterprise amounted to more than 10 million US dollars [5]. The lean production concept has helped the company to eliminate many types of losses that do not add value to the final product. The quality of our products has significantly improved.

It should also be noted the success of LLC "Machine-Building Enterprise "COMPO" and JSC "Borisovsky Aggregate Plant", which successfully uses such a lean production tool as the "5S" system, which includes five main strategies: sort; set in order; shine; standardize; sustain [6, 7]. At the same time, these enterprises are working on the introduction of such a lean production tool as the "Kanban" system, which involves the use of information cards. These cards are used to transfer the production order from the subsequent operation of the production process to the previous one. The application of these principles has led to more than twice increase in productivity at JSC "Borisovsky Aggregate Plant", and at LLC "Machine-building Enterprise "COMPO" – in more than four times.

If we analyze the activities of enterprises that use the concept of lean production in practice, then in the end they achieve the following main results:

- reducing the level of defects by 90%;
- reduction in production cycle time by 90%;

- decrease in the level of inventory by 90%;
- reduction in total costs by 73%;
- intensification of the development of a new market from 50 to 75%;
- increase in labor productivity up to 70%;
- the release of production areas up to 50% [2, 3].

Conclusion. The Lean Production system is a consolidation of innovative technological opportunities that should be available in the work of every modern industrial enterprise in Belarus. The introduction of the tools and methods of the concept has a positive effect on the ability to successfully develop the enterprise. An equally important result of using the system is an increase in both economic and technological efficiency, which will help organizations to reinforce their competitive positions in sales markets, as well as open up horizons for the development of new markets and, most importantly, to produce and sell high-quality competitive products in demand.

REFERENCES

1. Бизнес-планирование: учебник / под ред. В. М. Попова и С. И. Ляпунова. – М. : Финансы и статистика, 2001. – 672 с.
2. Логистика: учеб. пособие. – 2-е изд., испр. / В.И. Маргунова [и др.]; под общ. ред. В. И. Маргуновой. – Минск : Вышэйшая школа, 2013. – 508 с.
3. Вумек, Дж. П. Бережливое производство. Как избавиться от потерь и добиться процветания вашей компании / Дж. П. Вумек, Д. Т. Джонс. – М. : Альпина Паблишер, 2016. – 472 с.
4. Официальный сайт ОАО «УКХ «БКМ» [Электронный ресурс]. – Режим доступа: https://bkm.by/. – Дата доступа: 15.03.2021.
5. Портал «Управление производством» [Электронный ресурс]. – Режим доступа: http://www.up-pro.ru/. – Дата доступа: 21.03.2020.
6. ООО «Машиностроительное предприятие "КОМПО"» [Электронный ресурс]. – Режим доступа: https://kompo.by/. – Дата доступа: 06.10.2020.
7. ОАО «Борисовский завод агрегатов» [Электронный ресурс]. – Режим доступа: https://www.bza.by/. – Дата доступа: 23.03.2021.

UDK 657

DIGITAL ACCOUNTING: ESSENCE AND DIRECTIONS OF DEVELOPMENT

A. KONON, E. AFANASYEVA
Polotsk State University, Belarus

The article presents the directions of digitalization of accounting. Various approaches to the definitions of "digital accounting" and "digitalization of accounting" have been studied, the relationship between these concepts has been studied. The essential characteristics of the concept of "digital accounting" are highlighted and the author's definition is presented.

Introduction. Modern society has entered a new stage of global economic development, called the "digital economy", which is characterized by in-depth informatization and digitalization of all aspects of human activity. The global trend in the development of the digital economy is enshrined in the Declaration "On the Digital Economy: Innovation, Growth and Social Well-being", adopted at the Ministerial Conference in Cancun (Mexico) (2016) [1].

In accordance with the State Program for the Development of the Digital Economy and the Information Society for 2016-2020 [2], the Republic of Belarus is expected to improve the conditions for the formation of the digital economy and the development of the information society on the basis of the introduction of digital technologies in education, healthcare, agriculture and industry. In this context, the issues of the role and place of accounting in the system of information support for the management of economic processes become relevant, since its functionality traditionally includes the collection, processing and provision of economic information about the activities of economic entities.

In recent years, the most important issue has been the formation of a new accounting paradigm related to the digitalization of the economy and the development of the information society of the XXI century. Well-known scientists-economists began to use new terms in scientific publications: "digital accounting", "digitalization of accounting". At the same time, the unified approach to reform the accounting methodology doesn't exist, since these concepts are not fixed in the legislation, and the authors disagree. The main objective of the study is to determine the economic essence of digitalization for accounting purposes.

Research. Some authors [3, p. 33; 4, p. 251] consider that the main direction of accounting modernization is the use of new digital technologies (blockchain technologies, cloud storage, etc.), the introduction of which in comparison with manual information processing provides the following advantages:

- absence or reduction of the number of primary documents;
- reducing the complexity of processing accounting information;
- fast processing of large data sets;
- presentation of data in a convenient form for analysis (charts, graphs, tables);
- instant exchange of information, both between the structural divisions of the organization, and between the organization and government agencies;
- elimination of arithmetic errors;
- online communication with regulatory authorities and banks;
- the ability to quickly respond to changes in legislation, etc.

Other authors [5, p. 65; 6, p. 54] emphasize the emergence of new accounting objects (tokens, cryptocurrency, transaction block, digital records, property rights in the transaction register, human capital, customer base, etc.), for which there is a need to develop new accounting methods and principles.

Table 1 presents the opinions of various authors on the definition of the concepts of "digital accounting" and "digitalization of accounting".

Table 1. – Approaches to defining the essence of the concepts of "digital accounting" and "digitalization of accounting"

Name of the literary source / author, year	Definition
1	2
Varlamova, D.V., Alekseeva, L.D. Voprosy vnedrenija cifrovyh tehnologij v sistemu buhgalterskogo uchjota, 2020.	Digitalization of accounting is a significant change in accounting, which involves innovative processes of creating, storing and transmitting information, namely: the technology of obtaining, storing and transmitting the necessary information to the addressees in accounting; the methodology of systematization of information.[4, p. 250]

The continuation of table 1

1	2
Karpova, T.P. Napravlenija razvitija buhgalterskogo uchjota v cifrovoj jekonomike, 2018	Digital accounting is a modification of accounting based on new indicators, methods of collecting and processing not only financial information, but also the sufficiency of its integration with information about other aspects of the business and the external environment. [6, p. 52]
Cih, A. Buhgalter v cifrovuju jepohu // Chto delat' Obozrenie. - 2019. - №5 (168)	Digitalization of accounting operations is the posting of account statements in the accounting program, the processing of primary documents and the establishment (registration) of documents for conducting accounting operations. [7]
Pozharickaja, I.M. Cifrovoj uchjot: mif ili real'nost'? - 2019	Digital accounting is a system of registration, accumulation, systematization, storage and transmission of information in electronic form about the objects of the digital economy, both at the national and international levels. [8]
Filippova, A. V., Eremenko, V. A. Perspektivy vnedrenija cifrovyh tehnologij v rossijskuju jekonomiku i buhgalterskij uchjot, 2020.	Digital accounting is the introduction of digital technologies in accounting. [9]
Pak, M.V., Tkach, V.I., Model' cifrovogo uchjota, 2019.	Digital accounting is accounting that relies on a digital platform consisting of an engineering chart of accounts, blockchain, and other programs. [10]
Kolosova, O.E, Cifrovizacija buhgalterskogo uchjota, 2019.	Digitalization of accounting is the regulation of production in a single virtual environment with various information technologies and application software products. [11]
Erjomenko, V.A., Mamleeva, A.M. Vlijanie cifrovizacii na buhgalterskij uchjot, 2019.	Digitalization of accounting is an approach to the use of digital resources in the work of an organization, redefining technologies and business processes to improve the working environment of employees, interaction with customers and other participants in the activities of a modern enterprise. [12]
Loktionova, S.A., Strekalova, S.A. Vzaimodejstvie buhgalterskogo uchjota i cifrovoj jekonomiki, 2019	Digitalization of accounting - modernization of the organization's business activities, processing more information than a person can process, improving the efficiency of production processes. [13]
Pidorja, S.A. Jelementy cifrovogo metoda buhgalterskogo uchjota , 2019	Digital accounting is a system of techniques and methods used to create a business that meets the goals set for the organization. [14]
Pikalov, P.A. Cifrovaja jekonomika v buhgalterskom uchete, 2019	Digitalization of accounting - innovative accounting opportunities: new tools and communication channels for digital accounting and knowledge sharing. [15]
Kochetkova, A.S., Selezneva, M.P. Vlijanie cifrovizacii na buhgalterskij uchjot, 2019	Digitalization of accounting is an improvement of both the characteristics of accounting information and the possibilities of its application; a collection of indicators that characterize the state of internal socio-economic processes of the enterprise. [16]
Dujsen, K. Razvitie buhgalterskogo ucheta v jepohu cifrovizacii, 2019	Digitalization of accounting is the creation of a single database, which will reduce the time and labor resources for accounting management. [17]
Voronina, N.I., Nadezhdina, S.D., P'jankova, L.M., Fadejkina, N.V. Budushhee buhgalterskogo ucheta v kontekste sovremennogo razvitija cifrovoj jekonomiki, 2019	Digital accounting - information that represents the form of an intangible asset within a business entity. [18]
Shherbakova, A.V., Brjanceva, T.A. Vzaimosvjaz' cifrovizacii i buhgalterskogo ucheta, 2019	Digitalization of accounting is the automation of the collection, exchange, analysis and use of information in electronic and digital form and the creation of a unified information system of the enterprise. Digitalization is an approach to the use of digital resources in the work of an organization. [19]

The ending of table 1

1	2
Avdijskij, V.I., Trushanina A.D. Minimizacija riskov buhgalterskogo ucheta s ispol'zovaniem cifrovyh tehnologij, 2019	Digitalization of accounting is the provision of high-quality collection, generalization, systematization and analysis in huge volumes of any information about the financial, economic and other activities of economic entities. [20]
Lagunovskaja, E.O. Osnovnye napravlenija razvitija buhgalterskogo ucheta v uslovijah cifrovoj jekonomiki v respublike Belarus', 2020	Digitalization of accounting is a change in its content, methodological and conceptual foundations under the influence of information and communication technologies. [21]
Filippova, A.S., Ilatovskaja, M.A. Cifrovye tehnologii v buhgalterskom uchete: sravnenie sovremennyh servisov, 2020.	Digitalization of accounting - tools and communication channels for various data accounting, as well as the implementation of data exchange. [22]
Voz'janova, A.N. Osobennosti cifrovogo buhgalterskogo ucheta v sovremennom obshhestve, 2020	Digital accounting is when all transactions are recorded in an online server or database. [23]

Note: own development based on the study of special economic literature, electronic resources

The analysis of the concepts presented in Table 1 confirms that most authors identify the concepts of "digital accounting" and "digitalization of accounting". In our opinion, "digital accounting" is a complex concept that includes changes based on the use of digital technologies not only in accounting, but also in other types of accounting: operational, statistical, tax, personnel, social, and environmental. Accordingly, from the point of view of accounting, the narrower concept of "digital accounting" should be characterized.

In accordance with the Law "On Accounting and Reporting" No. 57-Z of July 2, 2013, "accounting is a system of continuous formation of information in value terms about the assets, liabilities, equity, income, expenses of an organization through documentation, inventory, accounting assessment, double entry on accounting accounts, generalization in reporting" [24]. At the same time, digital accounting retains the system of continuous information generation, but changes the order of implementation and generalization of records, respectively, digital accounting should be understood as a new form of accounting, which replaces automated accounting. Thus, the concepts of "digital accounting" and "digitalization of accounting" should be separated. "Digital accounting" is a new form of accounting, whereas "digitalization of accounting" is the process of implementing changes in accounting.

Based on the studied definitions presented in Table 1, we have identified the main features that characterize digital accounting:

- modernization, automation, and modification of accounting – in 29 % of definitions;
- the use of new indicators, methods of collecting and processing information – in 33 % of definitions;
- introduction of digital technologies - in 35 % of definitions;
- a system of techniques, methods, and tools-in 20 % of definitions;
- creation of a unified enterprise information system-in 30 % of definitions;
- contributes to improving the quality of collecting, summarizing, systematizing and analyzing information in any volume, improving the working environment - in 25 % of definitions.

Conclusion. Thus, based on the studied opinions of economic scientists and the identified distinctive characteristics of digitalization, we propose the author's definition of the concept of "digital accounting": this is a form of accounting based on the introduction of modern digital technologies in the accounting process and the use of modified accounting methods and tools, in order to improve the quality of collecting, summarizing, systematizing, analyzing large amounts of data, monitoring them and creating a unified information system of the organization. The proposed definition, in contrast to those presented in the table, fully reveals the essence of the concept of "digital accounting", as it gives not only the idea about the essence of the proposed changes in accounting, but also about the methods of their implementation, and what is more important, about the purpose of reforming the system.

REFERENCES

1. Ministerial declaration on the digital economy: innovation, growth and social prosperity («Cancuá n declaration»). – [Электронныий ресурс]. – URL: http://www.oecd.org/sti/ieconomy/Digital-Economy-Ministerial-Declaration-

2016.pdf. – (Дата обращения: 17.06.2017). – Текст на англ. – Пер. Загл. с экрана: Министерская декларация: о цифровоий экономике: инновации, рост и социальное процветание.
2. Об утверждении Государственной программы развития цифровой экономики и информационного общества на 2016–2020 годы: утв. Пост. Совета Министров Республики Беларусь от 23 марта 2016 г. № 235.
3. Каморджанова, Н.А. Цифровая экономика: изменение парадигмы бухгалтерского учета // материалы XII международной научной конференции студентов, аспирантов, преподавателей «Бухгалтерский учет, анализ и аудит: история, современность и перспективы развития». – 2017. – С. 31-36.
4. Варламова, Д.В., Алексеева, Л.Д. Вопросы внедрения цифровых технологий в систему бухгалтерского учёта // Вопросы внедрения цифровых технологий в систему бухгалтерского учёта. -2020. - №5 – С. 248-254 [Электронный ресурс]. – Режим доступа: https://readera.org/voprosy-vnedrenija-cifrovyh-tehnologij-v-sistemu-buhgalterskogo-ucheta-142223574. – Дата доступа: 12.10.2020.
5. Пожарицкая И.М. Проблемы идентификации и признания цифровых финансовых активов в учете // Учет. Анализ. Аудит. - №5(6), 2018. – С. 61-66.
6. Карпова, Т.П. Направления развития бухгалтерского учёта в цифровой экономике // Известия Санкт-Петербургского государственного экономического ресурса. – 2018. – С. 52 - 57 [Электронный ресурс]. – Режим доступа: https://cyberleninka.ru/article/n/napravleniya-razvitiya-buhgalterskogo-uchyota-v-tsifrovoy-ekonomike. – Дата доступа: 12.10.2020.
7. Цих, А. Бухгалтер в цифровую эпоху // Что делать Обозрение. - 2019. - №5 (168) [Электронный ресурс]. – Режим доступа: https://www.4dk.ru/news/d/20191009133144-bukhgalter-v-tsifrovuyu-epokhu. – Дата доступа: 12.10.2020.
8. Пожарицкая, И.М. Цифровой учёт: миф или реальность? - 2019 [Электронный ресурс]. – Режим доступа: https://www.elibrary.ru/item.asp?id=37105356. – Дата доступа: 12.10.2020.
9. Филиппова, А. В., Еременко, В. А. Перспективы внедрения цифровых технологий в российскую экономику и бухгалтерский учёт // Вестник Алтайской академии экономики и права. – 2020. - №5 [Электронный ресурс]. – Режим доступа: https://www.elibrary.ru/item.asp?id=42914119. – Дата доступа: 12.10.2020.
10. Пак, М.В., Ткач, В.И., Модель цифрового учёта // Экономические исследования и разработки. – 2019. – №10 [Электронный ресурс]. – Режим доступа: https://www.elibrary.ru/item.asp?id=41374687. – Дата доступа: 12.10.2020.
11. Колосова, О.Е, Цифровизация бухгалтерского учёта // Научные приоритеты в АПК: Инновации, проблемы, перспективы развития. – 2019. [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=41415517. – Дата доступа: 12.10.2020.
12. Ерёменко, В.А., Мамлеева, А.М. Влияние цифровизации на бухгалтерский учёт // Вектор экономики. – 2019. – №4 [Электронный ресурс]. – Режим доступа: https://cyberleninka.ru/article/n/vliyanie-tsifrovizatsii-na-buhgalterskiy-uchet. – Дата доступа: 15.10.2020.
13. Локтионова, С.А., Стрекалова, С.А. Взаимодействие бухгалтерского учёта и цифровой экономики // сборник трудов конференции «Образование и наука в современных реалиях» 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=41718703. – Дата доступа: 15.10.2020.
14. Ерёменко, В.А., Пидоря, С.А. Элементы цифрового метода бухгалтерского учёта // Элементы цифрового метода бухгалтерского учёта. – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=38096141. – Дата доступа: 15.10.2020.
15. Пикалов, П.А. Цифровая экономика в бухгалтерском учете // Актуальные вопросы современной экономики. – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=42917002. – Дата доступа: 15.10.2020.
16. Кочеткова, А.С., Селезнева, М.П. Влияние цифровизации на бухгалтерский учёт // Международный журнал гуманитарных и естественных наук. – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=41802751. – Дата доступа: 15.10.2020.
17. Дуйсен, К. Развитие бухгалтерского учета в эпоху цифровизации // сборник Международной научно-практической конференции. – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=43309460. – Дата доступа: 15.10.2020.
18. Воронина, Н.И., Надеждина, С.Д., Пьянкова, Л.М., Фадейкина, Н.В. Будущее бухгалтерского учета в контексте современного развития цифровой экономики // Сибирская финансовая школа. – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=42396545. – Дата доступа: 15.10.2020.
19. Щербакова, А.В., Брянцева, Т.А. Взаимосвязь цифровизации и бухгалтерского учета // сборник трудов конференций Международный молодежный форум «Образование. Наука. Производство». – 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=43872962. – Дата доступа: 15.10.2020.

20. Авдийский, В.И., Трушанина А.Д. Минимизация рисков бухгалтерского учета с использованием цифровых технологий // Минимизация рисков бухгалтерского учета с использованием цифровых технологий 2019 [Электронный ресурс]. – Режим доступа: https://elibrary.ru/item.asp?id=41591912. – Дата доступа: 15.10.2020.
21. Лагуновская, Е.О. Основные направления развития бухгалтерского учета в условиях цифровой экономики в Республике Беларусь // Вестник науки. – 2020 [Электронный ресурс]. – Режим доступа: https://events.spbu.ru/eventsContent/events/2020/econsymp/new.pdf. – Дата доступа: 15.10.2020.
22. Филиппова, А.С., Илатовская, М.А. Цифровые технологии в бухгалтерском учете: сравнение современных сервисов // 2020. – №5 (63) [Электронный ресурс]. – Режим доступа: https://esa-conference.ru/wp-content/uploads/files/pdf/Filippova-Anna-Sergeevna.pdf. – Дата доступа: 12.10.2020.
23. Возьянова, А.Н. Особенности цифрового бухгалтерского учета в современном обществе // Аллея науки. – 2020 [Электронный ресурс]. – Режим доступа: https://alley-science.ru/domains_data/files/4June2020.pdf. – Дата доступа: 12.10.2020.
24. О бухгалтерском учете и отчетности: Закон Респ. Беларусь № 57-З от 2 июля 2013 г.

Economics

UDC 331.108.2:796.071(043.3)

DIRECTIONS FOR THE DEVELOPMENT OF HUMAN CAPITAL IN THE MANAGEMENT SYSTEM OF PROFESSIONAL SPORTS CLUBS OF THE REPUBLIC OF BELARUS

A. MATVIENKA
Polotsk State University, Belarus

The research is devoted to the development of human capital in the management system of professional sports clubs of the Republic of Belarus. The foreign practice of forming the management system of leading professional sports clubs is considered. The directions of human capital development in the management system of professional sports clubs of the Republic of Belarus, based on effective foreign practice, are proposed.

In the world economic science, human capital has become one of the most valuable resources of post-industrial society, more important than accumulated or natural wealth. The main place in modern economic analysis is occupied by the conception of human capital. In many countries of the world today, it is human capital that determines the pace of scientific and technological progress and, mainly, economic development. Prevalence of human capital in the composition of national economy is becoming obvious.

The modern problem of human capital in economic science has a fairly complete coverage in the scientific, applied and educational literature. The concept of human capital as an economic category is reputed one of the keys one's concepts in economics today, which make it possible to describe and explain through the prism of human actions and interests of many economic processes. Despite the long history of the development of the theory of human capital, no single approach to the definition of this concept and methods of its evaluation has been formed.

Human capital is also considered a leading factor in the professional sports industry. This is evidenced by the fact that the efficiency of the economic activities of all professional sports clubs immediately depends on the formation and development of human capital both at the team level and in the organization's management system.

In foreign practice, the formation of a management system in leading professional sports clubs (table 1) is realized on the basis of a traditional management and control structure, which provides for the division of responsibilities between the Shareholders Meeting and the Board of Directors, in some clubs and with the Board of Auditors, which guarantees a constant exchange of information between management and shareholders.

Table 1. – Foreign practice of forming the management system of leading professional sports clubs

Professional sports club	Administrative and managerial staff
1	2
Barcelona	President First Vice President. Sports activities Vice President. Institutional activities Vice President. Economic activity Treasurer Secretary 13 members of the management board
Real Madrid	President First Vice President Second Vice President Third Vice President Secretary 12 members of the management board
Bayern Munich	President First Vice President Second Vice President 4 honorary presidents 4 honorary vice-presidents Chairman 9 members of the administrative council 5 members of the honorary council 7 members of the management board from divisions 49 honorary members

The ending of table 1

1	2
Manchester United	Chairman of the Management Board Deputy Chairman of the Management Board Members of the Management Board President Executive Director Development Director Technical Director Chief Analyst Head of the Youth Department
Liverpool	General Manager Chairman 2 Directors Executive Director
Manchester City	General manager Chief Financial Officer Director of Operations Group Marketing Director Director of Football Technical Director 2 Director of the Department of Club and International Football Development 4 Executive Directors Executive Director of Football Operations General Counsel Chief Strategic Development and Human Resources Specialists
Paris Saint-Germain	President Executive Director 2 Sports Directors Head of the Youth Department Head of the Medical Service Chief Analyst
Chelsea	Members of the Management Board President 4 Vice-Presidents Chairman Executive Director 2 Directors
Tottenham Hotspur	Chairman Chief Operating Officer and Chief Financial Officer Executive Director Director of Football Administration and Management Director of Technical Performance 2 Directors
Juventus	Shareholders Meeting Board of Directors Board of Auditors (internal and independent audit, data protection, financial controlling) Executive Chairman Deputy Chairman 3 Directors 4 Independent Directors Risk Manager

Source: compiled by the author based on data analysis [2-12].

It should be noted that the administrative and managerial staff of all leading clubs is equipped with highly qualified specialists, many of whom have graduated from the most prestigious universities in the world and have

master's degrees in economics, management, business research, marketing, strategic human resource management, business administration and have extensive experience in managing the economic activities of the organization. Senior managers, in turn, have academic degrees of Doctor of Science and the title of professor. So, for example, the managers of Bayern Munich have a good representation in the scientific experience: 5 doctors of science (first vice-president, chairman, 2 members of the administrative council, member of the honorary council and honorary member of the club) and 1 professor (first vice-president), which indicates the importance of postgraduate education (obtaining scientific and research experience) for the formation of human capital in the management system of professional sports clubs.

The state program "Physical Culture and Sport" in the Republic of Belarus for 2021-2025 provides for the use of modern management technologies in the activities of sports organizations [1], for the implementation of which and, in connection with the above, according to the author, it will be advisable to improve the management system in professional sports clubs of the Republic of Belarus in the direction of development positions that ensure control and economic security of the organization, based on effective foreign practice.

Effective foreign experience in the formation of the management system of leading professional sports clubs shows that each organization has connecting key positions that serve as a link in the management structure and ensure the control and economic security of the company. In order to further develop human capital in the management system of professional sports clubs of the Republic of Belarus will contribute to, the author believes that the introduction of the following positions:

– Deputy Chairman (Director) for Transfer Policy (rent, sale and purchase of rights on professional athletes);
– Chief Analyst (analysis of the transfer market, the economic state of a professional sports club, development of practical recommendations for the development of the organization, etc.);
– Risk Manager (ensures the implementation of an effective system for identifications, monitoring and managing the main corporate risks of a professional sports club).

The proposed directions of human capital development in the management system of professional sports clubs of the Republic of Belarus allow reducing the costs of developing the organization's human capital by increasing the productivity of their management system, relying on effective foreign practice.

REFERENCES

1. О Государственной программе «Физическая культура и спорт» на 2021-2025 годы [Электронный ресурс]: постановление Совета Министров Респ. Беларусь, 29 янв. 2021 г., № 54 // ЭТАЛОН. Законодательство Республики Беларусь / Нац. центр правовой ин-форм. Респ. Беларусь. – Минск, 2021.
2. Deloitte Football Money League 2021 [The electronic resource] // Deloitte. – Access mode: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/sports-business-group/deloitte-uk-deloitte-football-money-league-2021.pdf. – Date of access: 02.02.2021.
3. Football club Barcelona. Official website [The electronic resource]. – Access mode: http://www.fcbarcelona.com/. – Date of access: 17.01.2021.
4. Football club Bayern Munchen. Official website [The electronic resource]. – Access mode: http://www.fcbayern.de/en/. – Date of access: 17.01.2021.
5. Football club Chelsea. Official website [The electronic resource]. – Access mode: http://www.chelseafc.com/. – Date of access: 17.01.2021.
6. Football club Juventus. Official website [The electronic resource]. – Access mode: http://www.juventus.com/it/. – Date of access: 17.01.2021.
7. Football club Liverpool. Official website [The electronic resource]. – Access mode: http://www.liverpoolfc.com/welcome-to-liverpool-fc. – Date of access: 17.01.2021.
8. Football club Manchester City. Official website [The electronic resource]. – Access mode: http://www.mcfc.co.uk/. – Date of access: 17.01.2021.
9. Football club Manchester United. Official website [The electronic resource]. – Access mode: http://www.manutd.com/. – Date of access: 17.01.2021.
10. Football club Paris Saint-Germain. Official website [The electronic resource]. – Access mode: https://en.psg.fr/. – Date of access: 17.01.2021.
11. Football club Real Madrid. Official website [The electronic resource]. – Access mode: http://www.realmadrid.com/en. – Date of access: 17.01.2021.
12. Football club Tottenham Hotspur. Official website [The electronic resource]. – Access mode: https://www.tottenhamhotspur.com/. – Date of access: 17.01.2021.

UDK 94(474.5)

PRIMARY ACCOUNTING DOCUMENTS OF THE POLOTSK VOIVODSHIP IN THE XVI CENTURY

V. YATSENKO, I. MATUSH
Polotsk State University, Belarus

This article discusses primary accounting documents of the Polotsk voivodship in the XVI century. The Polotsk voivodship, which was a part of the Grand Duchy of Lithuania, had its own system of state records management. The main document was the 1588 Statute of the Grand Duchy, which regulated the entire accounting process and also set its own rules and regulations. All the documents in the Polotsk voivodship covered various legal relations.

Methods of research: In the process of writing this article, general scientific research methods were used, such as analysis, synthesis, comparison and conclusion by analogy.

Introduction. The technology of writing is the main condition for the appearance of a legal document. On the territory of the Polotsk voivodship, the legal document that emerged approved the contract, this document recorded the change in legal relations, and had to exist as long as the legal relations lasted.

The main part. In the modern world, all the processes of economic activity require their documentary reflection. Basing on this, we can say that the history of the development of accounting is directly related to the formation of accounting registers and the formation of primary accounting documents.

A document is information which is recorded on a storage medium in the form of a text, sound recording or image with details that allow it to be identified [1].

On the territory of the Grand Duchy of Lithuania, there was its own classification of information documents, according to which documents were divided into informative and complained.

Informative documents were created to transfer information about salary to local authorities. After receiving this document, the authorities could deny the recipient possession, provided that the recipient or addressee is in the service. Sometimes such documents were called "linked" sheets, because they spelled out an additional order for the recipient to take possession of the property [2]. It can be said that the informative sheets transmitted information in space and time, stimulated the memory of the composition of the recipients and the objects received.

Complained documents transferred information about different things which were passed to the Grand Duke. It was with the complained sheets that the Grand Duke confirmed various private transactions: purchases, exchanges, divisions of property and another.

All types of the legal documents in the XVI century were called "sheets", each record of "sheets" was entered in the act books. The main content of the act books is various types of documents that were published as a result of the law activities of a local authority, as well as judges appointed by the Grand Duke. Among the documents entered in these books, there are also a small number of entries that reflect some other official duties of these persons. Each document in the act books has its own name.

All the document management process in the Grand Duchy of Lithuania was carried out directly through the central administration. The documentation of the central administration divided the documentation of the voivodship into four groups.

The first group was legislative documentation, which included all the privileges, as well as the statutes of the Grand Duchy of Lithuania and also different types of laws and charters.

The second group included administrative documents. An example of administrative documents is the «land» and «regional» charters, instructions, as well as administrative "sheets".

The third group are various acts. The act books of the Grand Duchy of Lithuania are special books in the courts of the Grand Duchy of Lithuania, which were divided into 3 groups: «flow», «record», and «decree».

«Flow» books, which recorded various complaints, objections and protests, responses, as well as information related to the provision. The «record» books included acts of a notarial character, for example, various testaments, contracts for the purchase and sale of estates, as well as privelii and letters of the Grand Duke.

And the fourth group – various correspondence, communications and reports of representatives of the authorities.

All types of transactions in the Grand Duchy of Lithuania were registered in the court books. In turn, these books can be divided into two categories. The first is the books of the highest courts of the state, which were kept in the archives of the chancellery and which were part of the Lithuanian Metric. The second category includes the books of the higher courts, stored locally. The basis of all judicial documentation in various settlements was the books of the local courts, which were called «land» and castle courts.

Various agreements were also entered into the court books. Such documents were created when there was information and certain actions were performed. The land agreement was created in writing, and then entered into the courts books. The written form was provided for by the Statute of the Grand Duchy of Lithuania and loan agreements, cost more than 10 conventional units [3].

The metrics of the Grand Duchy of Lithuania included secondary and primary documents. The primary documents of the Metrica books should include, in particular, a group of records made about memory" - these are documents that were compiled some time after the action was performed - from memory. The secondary documents of Metrica were represented by documents and sheets originating from the Grand Duke [4].

Each document in the Grand Duchy of Lithuania had a stamp. The Chancellor in the Grand Duchy of Lithuania was the keeper of the stamp, without which the normative act would not be recognized. The recipient of the original documents was the Grand Duke's lieges, but not the Grand Duke himself.

In the 16th century, the lands of the Grand Duchy of Lithuania had their own record-keeping registers. There were the following registers: the summary register, the ordinary register, the arrested register, the inventory register, as well as specialized books called «black books». Each of these registers represents some records on paper, having different data: information about peasants, about various criminal cases, crimes and other cases on the territory of the voivodship [3].

Results. Since ancient times, accounting had its own characteristics. In the Polotsk voivodship there was its own system of accounting. Accounting and reporting were an important part of society. Normative documentation existed in each period and met the requirements of that time. The documentation was kept according to the norms and rules of regulatory documents. All information about the activities of the organization, which is in the primary accounting documents, is subject to registration in the accounting registers. Each of the registers is compiled in accordance with the accounting form used by the organization, in compliance with all the requirements set out in the article.

Thus, this article reflects the features of primary documents. On the territory of the Grand Duchy of Lithuania, as well as on the territory of Belarus, the entire process of accounting and reporting was regulated by normative documents. All processes were registered. And also all documents in the Polotsk voivodship recorded various legal relations. All transactions were fixed in special books. Information was added into books without any grouping according to certain signs. Documents on the territory of the Polotsk voivodship were called **"sheets"**. All "sheets", as well as other extracts, were recorded in the act books.

REFERENCES

1. Азрилияна А. Н. Большой экономический словарь. М.: Институт новой экономики, 2002. 469 с.
2. Рыбаков А.Е. Делопроизводство в Великом княжестве Литовском в XVI в. Делопроизводство, 2001, №1. с.109-114.
3. Лицкевич О. Статут Вялікага княства Літоўскага 1588. Тэксты. Даведнік. Каментарыі. Мн., 2002-2003.
4. Литовська Метрика. Книга 561: Ревізіі українських замків 1545 року. К: Інститут української археографії та жерелознавства ім. М. С. Грушевського, 2005. с. 93-255 с.
5. Пташицкий С.Л. Описание книг и актов Литовской Метрики. Санкт-Петербург, 1887. с.162.

UDC 656.135

THE TENDENCIES OF ROAD TRANSPORTATION'S IMPACT ON THE ENVIRONMENT

P. PAZNIAKOU, P. LAPKOUSKAYA
Belarusian National Technical University, Minsk, Belarus

The article focuses on the environmental issues of road transportation. Despite the steady decline in the amount of pollutants released into the atmosphere by transport vehicles over the past 10 years, there is a tendency to increase the share of road transport in the total cargo turnover and the volume of goods transported, which can lead to serious environmental consequences unless all the necessary measures are taken.

The impact of transport on the environment is highly negative. There are more and more trucks on the roads, especially large and oversized ones, which release unhealthy substances into the air. When the truck is running, the atmosphere receives approximately sixty different types of chemicals which are mainly toxins, such as hydrocarbons, soot, carbon monoxide and lead.

The transportation sector consumes a significant amount of fuel, energy and other non-renewable resources while performing its important socio-economic functions. The environment and society suffer considerable environmental damage at all stages of the production, operation and disposal of motor vehicles. This damage includes:

- the emission of pollutants into the atmospheric air (figure 1);
- noise and vibration;
- the pollution of soil and water resources;
- waste generation;
- the withdrawal of land and forest resources during the construction of transport infrastructure.

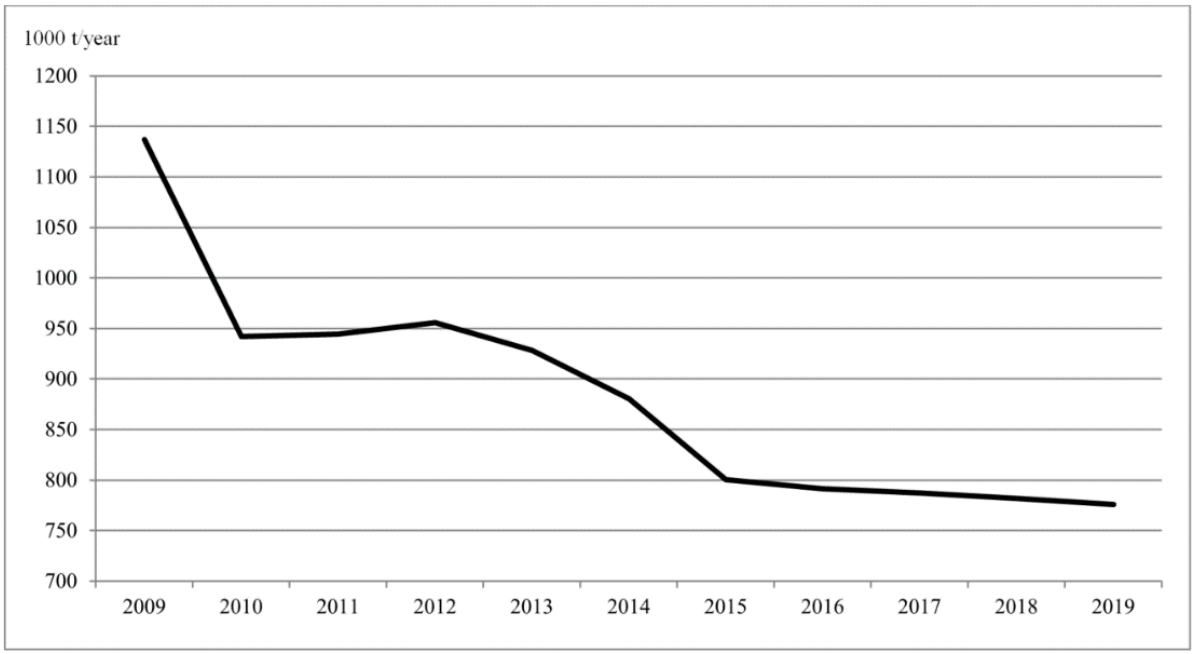


Fig. 1. – The amount of pollutants released into the atmosphere by transport vehicles [1]

The effects of automobile pollution are widespread, affecting the quality of air, soil, and water. Nitrous oxide contributes to the depletion of the ozone layer, which protects the Earth from the harmful ultraviolet radiation of the Sun. Pollution is one of the main causes of global warming. Cars and trucks emit carbon dioxide and other greenhouse gases into the atmosphere, which account for a fifth of the total global warming pollution. Greenhouse gases trap heat in the atmosphere, causing temperatures to rise around the world. Without greenhouse gases, the Earth would be covered in ice, but the burning of excessive amounts of fossil fuels, such as gasoline and diesel, has caused global temperatures to rise by 0.6 degrees Celsius, or 1 degree F, since the pre-industrial period, and this will continue in the coming decades. Higher global temperatures are affecting agriculture, wildlife, sea levels, and natural landscapes.

Sulfur dioxide and nitrogen mix with rainwater, creating acid rain that damages crops, forests and other vegetation, and buildings. Oil and fuel spills from cars and trucks seep into the soil near highways, and fuel and particulate matter from vehicle emissions pollute lakes, rivers and wetlands.

Automobile exhaust fumes can be extremely harmful to human health. For example, carbon monoxide has no taste and smell, but at high concentrations it causes dizziness, headache, nausea, and can even lead to fainting. Hydrocarbons in car emissions are oxidized when exposed to sunlight. They form toxic compounds with a pungent smell which especially strongly affect the functioning of the upper respiratory tract and lead to the exacerbations of the respiratory system's chronic diseases. Constant exposure of the body to exhaust fumes can lead to immunodeficiency, bronchitis and the overall bad state of the nervous system and other organs. In addition, most of the toxic substances that make up the exhaust gases can interact with each other and with other components of the atmosphere, which contributes to the formation of smog. Car noise is also harmful damaging hearing and causing psychological distress.

The problem of air pollution is becoming more acute due to a sharp increase in the fleet of vehicles, the total power of engines, and the consumption of fuel and energy resources. The most harmful impact of the transport system on the environment in general and the atmospheric air in particular is caused by road transport, which accounts for more than 80% of the total emissions of harmful substances into the atmospheric air from mobile sources of pollution. A significant increase in the fleet of vehicles entails an increase in fuel consumption, primarily diesel, with an almost constant increase in gasoline consumption.

Amid growing demand for road transport services in Belarus, there are a number of unresolved problems such as aging vehicle fleet, insufficient technological level of transport equipment and the absence of interaction between various transport-related industries.

Despite the steady decline in the amount of pollutants released into the atmosphere by transport vehicles over the past 10 years, there is a tendency to increase the share of road transport in the total cargo turnover and the volume of goods transported (figure 2).

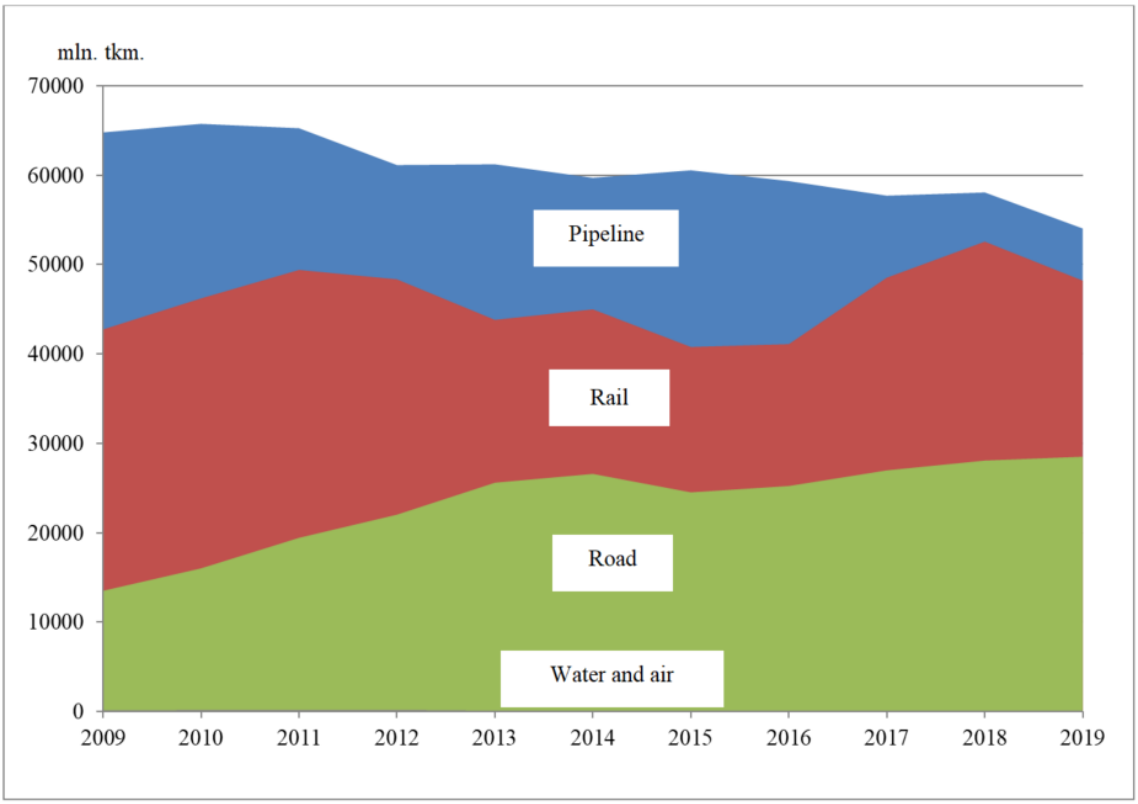


Fig. 2. – Cargo turnover by various types of transport [2]

Legal regulation in the field of reducing the harmful effects of transport on the atmospheric air should be enhanced (the development and implementation of normative legal acts in order to promote the production and operation of vehicles that meet modern requirements in the field of environmental safety and the improvement of the system of emissions and smokiness regulation).

For example, EURO-6 ecological class trucks imported to the territory of Belarus are exempt from the recycling fee and value-added tax. This was stipulated by Decree No. 102, which was signed by the country's president. Such trucks include truck tractors, which were produced no more than one year ago, with a gross vehicle weight of more than 12 tons, but not more than 20 tons, and motor vehicles, which were produced no more than one year ago, for the transport of goods with a gross vehicle weight of more than 20 tons, but not more than 50 tons. The document was adopted in order to create conditions for the qualitative renewal of the fleet of Belarusian international carriers through the purchase of modern vehicles of high ecological class [3].

Fuel efficiency and environmental friendliness can be achieved by the improved working process of internal combustion engines, the introduction of low-toxic and cost-effective ways of equipment adjustment, the development and implementation of exhaust gas neutralizers and by the reduction of the vehicle's own weight.

It is necessary that fuel with improved environmental performance should be used (the reduction of the content of sulfur, benzene and aromatic hydrocarbons in gasoline and diesel fuel and the elimination of metal-containing additives). Biodiesel is an eco-friendly fuel for transport: in comparison with conventional diesel fuel, it contains almost no sulfur and at the same time undergoes almost complete biological decomposition. In the soil or in the water, microorganisms process 99% of biodiesel in 28 days – this minimizes the degree of pollution of rivers and lakes [4].

REFERENCES

1. The amount of pollutants released into the atmosphere by transport vehicles [Electronic resource]. – Mode of access: https://www.belstat.gov.by /. – Date of access: 27.03.2021.
2. Cargo turnover by various types of transport [Electronic resource]. – Mode of access: https://www.belstat.gov.by/. – Date of access: 27.03.2021.
3. A decree of the President of the Republic of Belarus has been adopted, which exempts imported new vehicles of the Euro-6 class from paying the recycling fee and VAT [Electronic resource]. – Mode of access: http://bamap.org/information/news/2020_03_20_117415/. – Date of access: 27.03.2021.
4. Biodiesel is an eco-friendly fuel for transport [Electronic resource]. – Mode of access: https://vlv-mag.com/rubriki/nauka/ekologichnyij-dizel. – Date of access: 27.03.2021.

Economics

UDC 339.9:[23+7] + 338.246

THE PRACTICAL APPLICATION AND FUTURE TREND OF PROJECT MANAGEMENT IN INTERNATIONAL ECONOMIC COOPERATION IN CHINA

WANG XIAOHAN, N. YEVCHENKO
Southern Federal University, Russia

With the development of the economy, the trade of China and other countries in the world are closer. There are more and more international economic cooperation projects. It improves China's international influence; meanwhile, it puts forward new and higher requirements for Chinese enterprises to carry out international project management.

With the increasing scale and quantity of international engineering projects, the content of project science and technology has been strengthened. With the change of the owner's demand for the project, the development of international project management has accelerated. In international project management, people need to innovate from the management mode, concept, thinking, and other aspects. The traditional management mode can not keep up with the development of the times.

On the one hand, the implementation of project management for international cooperation projects is conducive to the improvement of economic benefits, on the other hand, it is also conducive to the systematization of project management. In recent years, the scale of international cooperation projects is growing, there are more and more risks and problems. The main problem is that there is no clear understanding of the development characteristics of international project management and the lack of research and exploration on the reform and innovation, which leads to the international project management not meeting the needs of time [1, p. 34]. This article will start with the international infrastructure cooperation projects, and discuss the development status, problems in application, and future trends.

1. Development history and characteristics of project management

Ding Ronggui, global research coordinator of International Project Management Association (IPMA) and editor in chief of Project Management Review, pointed out that, through the summary of the development achievements of project management in China in the past 20 years, it is concluded that project management has great values for personal ability improvement and career development; it plays a supporting role in the development of enterprises; it has a great impact on the construction of related disciplines and related service industries in colleges and universities. Project management has a strong positive correlation with the development of the national economy.

In the 1980s, China introduced the theory, method, and system of western project management, and began to implement the international qualification certification of project management in the 1990s. In June 1991, China established the China Project Management Research Committee (PMRC), which is the only organization representing China to join the International Project Management Association (IPMA). In July 2001, authorized by the Certification Committee of International Project Management Association in Beijing press conference, IPMP China Certification Committee was formally established [2, p. 9]. IPMA is responsible for Chinese international project management professional qualification certification. After 20 years of development, the whole society of China pays more and more attention to the relevant work. The number of registered candidates for Project Management Professional (PMP) has increased year by year, from 316 in the first year to 105000 in 2019. It is estimated that the number of registered candidates will reach 200000 in 2021. The detailed data is shown in Fig. 1.

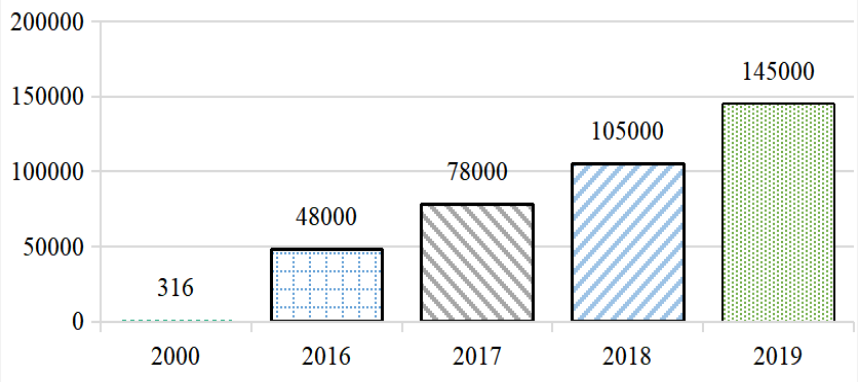


Fig. 1. – Number of Project Management Professional candidates in China, persons

At present, there are more than 330000 PMP holders in China, accounting for 1/3 of the global number of PMP holders. In 2019, 145000 applicants have nearly 50% of the global number of applicants. From the source of candidates, the majority of foreign enterprises are in the first place, then developed into Sino-foreign joint ventures, and then the proportion of private enterprises (44,14%) and state-owned enterprises (20,18%) [3, p. 21]. This data also reflects that the development of the PMP examination is closely related to the national economic activity and the innovation level of the industry. PMP candidates show a trend of youth. Since 2010, the proportion of candidates over 36 years old has declined, and 26-35 years old are now the mainstream. Although project management has been developing vigorously in China in the past 20 years but compared with some developed countries, there are some differences and gaps in the theory, method, system research, and application of project management. These differences come from various aspects of economy and culture. Through the analysis of relevant personnel, the scientific level of project management in China will be improved continuously, so as to further improve the international project management efficiency.

2. Characteristics of Chinese and foreign project management

Because of the huge historical and cultural background between China and foreign countries, the characteristics of project management are also different.

Firstly in the management mode, generally speaking, the international project management mode refers to the project management operation mode of large engineering companies or management companies engaged in international engineering construction. There are some Chinese companies that adopt the mode of owner's own management. The characteristic of this mode is that owner directly responsible for the whole project, mainly including the construction and design of the project. This «headquarters» management mode has been used for a long time in China, but with the increasing internationalization of project management, the traditional owner management mode in project management is being impacted. More and more engineering projects begin to move towards the mode of Sino-foreign cooperation. In this process, the innovation of management mode becomes urgent. Foreign project management adopts the management mode that the owner employs the contractor. The project contractor carries out the integrated management of the project, the professional management team carries out the design and construction of the project, and the project manager is responsible for the construction of the overall scheme for the project. It also has the characteristics of phased management. As the construction and management of international engineering projects are faced with some special problems, there is a need to innovate the management concept on the basis of the original management mode, flexibly use the management mode, and seriously implement the contract management. To ensure the quality of the project, improve the economic efficiency and save the cost of the project as the main goal.

Secondly, in terms of management team building, most of the Chinese-style project management teams are project managers appointed by the company with higher positions in the organization. Project managers drive projects according to their own power, that is, the rule of man is driven by power. Some foreign countries pay attention to logic, abide by rules and regulations, and follow the process of project management. In short, it is «rule of law» and process-driven. Process-driven is carried out according to the «law» which is solidified and abide by everyone, while the rule of man is divergent, which is carried out according to personal style characteristics.

3. Key problems of international cooperation of project management

The infrastructure construction project is a long-term work that takes the environment as the working object, human, material, and financial resources as the conditions comprehensively use various scientific and technological means, and has relatively large investment cost, so as to obtain as much economic value as possible. It is a complex process of the project inspection and implementation to the final completion, and its final value is related to a large number of uncertain factors such as environment, engineering technology, politics, economy, and culture. In the process of international infrastructure project development, decision-makers and managers deal with a large number of uncertain phenomena all the time. Different international projects have many different characteristics, which are mainly characterized by high risk, long time, and cross-region.

1) High comprehensive risk.

Infrastructure construction is the embodiment of a country's comprehensive national strength and has a linkage effect of economic value. These factors will undoubtedly speed up the attention to international project cooperation, but also increase the cost of investment. Infrastructure projects development from input to output goes through a long and extremely complex process. In this process, dozens of disciplines are involved, the comprehensive degree of some engineering disciplines is often unprecedented, and the application of the required high technology in actual production is not common. If there is a little experience that can be used for reference and the investment is large, the risks will be great. Long payback period

2) The payback period of international infrastructure projects is long.

It usually takes decades, or even hundreds of years to recover the investment from project inspection to completion. For example, the investment recovery time of the British French undersea tunnel may reach 1000 years, according to the prediction of some experts [5].

3) High uncertainty

Some projects, which rely heavily on the existing human technology level and expert ability to control knowledge, are difficult to predict the final results. All kinds of parameters and existing theories have their own uncertainties, so the uncertainty of the results of calculating resources based on these parameters is even greater, especially for some international cooperation scientific research projects, the results and value can not be measured in the short term, and the risk is obvious.

4) Regional risk

Some infrastructure construction projects are carried out in underdeveloped areas. Due to the poor regional environmental conditions, the preparation time is long, and the relative cost increases. It also increases the risk of investment. In addition, cultural differences in different regions are more likely to cause cultural conflicts, which increases the risk of international cooperation projects.

5) High political risk

At present, the trend of global cooperation project resource sharing is more and more obvious. In the past, more developed countries participated in international high-tech projects, but now some developing or less developed countries, such as central Africa, eastern Africa, and Eastern Europe, are also trying to provide opportunities for cooperation and construction. Infrastructure construction is the basic industry of a country, which has a significant impact on the national economy. It is a venture capital that governments and companies are willing to develop, the development of the Beijing-Moscow high-speed railway by the Chinese and Russian governments is an example. However, there are great differences in political systems, political stability, and policy continuity among countries, which often affect the success or failure of international cooperation infrastructure projects.

4. Frontier analysis of international project management - Beijing to Moscow high-speed railway project

In 2015, Russia and China jointly put the Beijing-Moscow high-speed railway project on agenda, this project is the first high-speed railway in Russia, is the longest high-speed railway line in the world, and the largest engineering project in the history of Russian-Chinese economic and trade cooperation. The complexity of the project is high, the cost is high, the life cycle is long, and there are many uncertain factors. Therefore, project management is particularly important to infrastructure project construction. For such major international cooperation projects, the correct level of risk analysis sometimes determines the future trend of all projects, and risk management is essential in all aspects of the project.

The project plans to cost the US $237 billion, about 1.5 trillion yuan, reducing the transportation time of Beijing to Moscow from six days to 38 hours. The mainline is the route passing through Kazakhstan, with a total length of 6089 km, of which 2366 km is in Russia and the starting station is in Urumqi, Xinjiang, China. The construction schedule is shown in Table 1 [4].

Table 1. – Construction Progress of "Beijing-Moscow High-speed Railway"

Construction Segment	Construction Period
Moscow - Kazan	2018 - 2024
Kazan - Ekaterinburg	2020 - 2026
Ekaterinburg - Chelyabinsk	2021 - 2025
Chelyabinsk - Dostyk	2020 - 2027
Dostyk - Urumchi	2023 - 2027

In the high-speed railway construction cooperation project, there is a need to deal with the economic aspects, such as the price fluctuation of the building materials market, the fluctuation of the global financial market, foreign exchange, and the inflation rate. Risk control of contract terms is also really significant. Technical aspects, such as to control the risk of insufficient technical capacity of the contracting enterprise. Feasibility studies decision-making aspects, such as return on investment calculation risk control, etc. All these risk prevention and control are the premise and guarantee to ensure the smooth implementation of the project, and also the top priority of project management.

5. Future improvement space of international project management -- pre control and post evaluation

The prior control of project management mainly contracts risk management and the establishment of the risk assessment system. International engineering management is essentially the management of contracts. Besides the management of internal staff and internal cost control, all other related work is also a part of contract performance. Nowadays, FIDIC contract, yellow book, silver book, and red book are the most popular contract templates abroad. It agrees on rights and obligations for owners, consultants, and contractors. When signing the confirmation contract, the project management Party B and the owner Party A shall repeatedly communicate the

contents of the contract item by item. Among them, the risk-sharing regulations are particularly concerned, and the risk problems that are perceived in advance should be avoided. The advance payment method of reducing enterprise funds and related equipment can be included in the price adjustment formula for the contract and the compensation formula for exchange rate loss. In this way, the cost change caused by price rises and exchange rate change in the process of project implementation can be avoided, and the risk can be reduced [6]. The amount of contract transaction is an important prerequisite that directly affects the cost of project implementation. Therefore, the budget evaluation of cost price must be carried out before the initial stage of contract signing, and attention must be paid to it. According to the characteristics of different projects, the risk is estimated and the risk prevention and early warning system is established.

In the progress of a project, it is necessary to coordinate cost control, process progress control, and project quality supervision. After the project is mainly the project maintenance and effective evaluation of the project value. The basic data such as the total investment, financing source, product cost of each year, profit distribution, and loan repayment plan for the production period shall be collected and sorted out. Financial and economic activity statements should be prepared separately for financial evaluation and value evaluation. This work is essentially to analyze the financial and economic activities after the completion of the project, so as to reveal the law of financial and economic activities of the project in the calculation period. Financial evaluation and project national economic evaluation should also be carried out to evaluate the economic value of the project through the comprehensive analysis of the economic benefits of the construction project enterprise and the national economic benefits. As an international cooperation project case, it can provide reference to future international infrastructure construction.

6. Conclusion

Through the improvement and upgrading of project management, it is possible to make it can provide better service and be applied to large-scale international cooperation projects, which plays a driving role in improving project success rate, efficiency, and cost-saving. Meanwhile, through the analysis and summary of more cooperative projects, it could be possible to enrich the theoretical results of project management and promote the practical application of project management in the future.

At present, the practical application of project management has been very extensive in China, which has relatively strong control over large-scale international projects. However, compared with the international advanced management level, there is still a gap. Only by constantly learning advanced management technology and summing up advanced management experience can the relevant management team be more competitive in the future international market.

REFERENCES

1. Development characteristics and Countermeasures of international project management / Zhang Xin // National circulation economy - 2019 - iss. 2096-3157(2019)35-0034-02 - P. 34.
2. On international project management professional qualification certification / Zhou Xu // Foreign investment in China - 2013. - № 297 - iss. 1004-8146 - P. 9.
3. Project management has a strong positive correlation with national development / Ding Ronggui // Project management review - 2020. - № 28. - P. 21.
4. Research on risk management of Beijing-Moscow high-speed railway project / Kotenko Anna - Harbin Institute of Technology, 2018. - 21 p.
5. Baidu academic[Electronic resource]: Case study on the financing of Cross Harbour Tunnel Project in Britain and France - Mode of access: https://wenku.baidu.com/view/132be488ac51f01dc281e53a580216fc700a53cf.html. – Date of access: 24.09.2018.
6. Reference network [Electronic resource]: On contract management and risk prevention in international project management // Wealth Today - Mode of access: https://www.fx361.com/page/2020/0621/6820385.shtml. – Date of access: 21.06.2020.

Economics

UDK 004.825

LOGISTICS DIGITALIZATION DEVELOPMENT TRENDS

E. SMOLENSKAYA, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

The article describes the main trends in the development of logistics digitalization in modern conditions of globalization of the economy, reveals their role and place in increasing the efficiency of management of logistics specific areas, draws the appropriate conclusion regarding further development of logistics digitalization to ensure the competitiveness of this most important area of the economy.

Today it is difficult to imagine the viability of any sphere of human activity without the use of information technology, and logistics is not an exception. In modern conditions of globalization of the economy, logistics is unthinkable without the active introduction of information systems and technologies into it.

Digital transformation is a key and inevitable feature of the digital economy. Many processes are being reengineered due to the transfer of traditional business processes to automated or even automatic.

Note that logistics is introducing digital innovation more slowly than in some other industries. This slower pace of digital adoption carries enormous risks that, if ignored, could have potentially catastrophic consequences even for the largest incumbents in the global business.

As other sectors of the economy closely related to logistics, such as retail, undergo a digital revolution, the chances of digital disruption sweeping the logistics industry increase. For example, the rise of e-commerce has led to new digital entrants on the last mile.

More importantly, digital platforms will become increasingly important in the logistics industry, allowing small companies to have global reach and compete with established industry giants. Over the next few years, the race to build a dominant global platform will change the way customers think about logistics and become a central question in determining which businesses will be winners and losers in a truly digital logistics industry.

Speaking about the digitalization of logistics, the following technologies can be distinguished: 3D printing, Big Data, Internet of things, Blockchain, Cloud services, E-Commerce, etc. Let's take a look at some of them below.

Internet of things in logistics. Technological solutions based on the concept of the Internet of things are widely used in logistics. The Internet of things is a system of interconnected computing devices that allows data to be transmitted over a network without manual input. The Internet of things helps organizations to control and manage stocks, optimize cargo transportation routes, and more.

With the advent of the Internet of things, logistics can finally become a fully controlled area, where all factors that can negatively affect the delivery process can be neutralized or avoided.

In short, the benefits of using the Internet of things as an example of transport are as follows:

– reliable vehicle tracking. The Internet of things helps businesses track the location of each vehicle and compare the most economical route with the route the driver has taken;

– reduction of delivery costs. Automatic order processing and status updates help companies reduce the number of delivery staff, which reduces overall operating costs;

– improved supply chain planning. The Internet of things provides businesses with versatile data - how long it takes to sell a certain amount of goods in inventory, what are the ways to optimize supplies, which employees have the best track record;

– prevention of theft of products and control of transportation conditions. The range of the Internet of things and logistics anti-theft devices is huge - connected intrusion detection equipment, sensors for real-time asset tracking, alarm systems, smart fences, and more. A business manager will be able to find the Internet of things logistics solution that provides increased inventory and supply chain transparency, and protects against fraud, product theft or counterfeiting [1].

And what is important, the Internet of Things can allow you to reduce manual control to a minimum. According to PwC (PricewaterhouseCoopers - an international network of companies offering consulting and audit services), the economic impact of the introduction of the Internet of things in logistics in the future will be significant. The Internet of Things will enable organizations to control inventory, automate inventory reordering, and track shipments in real time. For example, sensors will be able to track the wear of equipment, which will allow timely ordering of spare parts and prevent breakdowns and carry out repairs on condition, without wasting extra resources [2].

International Data Corporation (IDC) has identified the main factors affecting the development of the Internet of things market:

– the formation by the state of strategic initiatives to build digital enterprises;
– optimization of business processes;
– integration of information technology with the operating activities of companies;
– increased competition within industries.

Thanks to the introduction of the Internet of things in logistics, we can talk about the emergence of such new services as fleet management system through connected sensors in transport; automatic dispatching systems that allow you to manage traffic flows and keep track of goods and vehicles throughout the supply chain using RFID-tags. Projects of the uberization of freight transportation (GoCargo and iCanDeliver) provide carriers and customers with a transparent tool for establishing contact without intermediaries in the face of forwarding companies.

In logistics, the introduction of the Internet of things technologies makes it possible to solve such urgent problems for the industry as reducing the cost of cargo transportation and delays on the way, increasing the transparency of transportation (including using RFID-tags) and minimizing the influence of the human factor. Internet-connected vehicles and remote monitoring of the vehicle fleet will reduce operating costs by optimizing the repair and maintenance of equipment. In addition, the uberization of cargo transportation is widely spread, which makes it possible to refuse the services of forwarding companies [3].

Next, let's take a look at the blockchain. When the blockchain is mentioned, people mostly think of cryptocurrency - digital money. However, the technology is used in many areas; one of them is logistics.

Blockchain is a way of storing information in which data is written to blocks in a distribution ledger. Information is stored by more than one person; it is duplicated for each member of the system.

It is worth replacing that having an effective, trustless automated system enables other areas to be introduced and improved, such as micropayments, certificate validation, digital identity, and document integrity. For example, logistics providers rely on drivers, and nowadays paper certificates are easy to counterfeit. With blockchain, learning organizations can replace outdated paper-based systems with a digital version that is tamper-proof. In addition to logistics services related to identification, this can also disrupt the current business practices of other organizations.

Here are the main advantages of blockchain technology in logistics:

– allows you to reduce the cost of logistics;
– excludes the possibility of data falsification;
– eliminates unnecessary intermediaries;
– allows you to reduce by an order of magnitude the time for document circulation, quickly find the link of transportation where a mistake was made, and reduce business costs due to losses.

As you know, blockchain technology is used by many companies, further let us turn our attention to several examples of using blockchain technology.

American company that operates the world's largest wholesale and retail chain, WalMart, is using blockchain technology to improve supply chain transparency and to track provenance. Since last year, WalMart requires lettuce and spinach suppliers to use a blockchain database. In the event of contamination by food borne illnesses, WalMart can identify through the blockchain the precise point of contamination.

The world's largest Danish company specializing in sea freight and port terminal services, Maersk, is utilizing smart contracts and blockchain to digitize international trade. Their tested system allows each participant in the supply chain to view the progress of a transaction through the supply chain without compromising the integrity, privacy or confidentiality of the transaction. This makes it easier for shippers, freight forwarders, port operators, customs regulators and all others to know where a container is in transit and allows for direct interaction through real-time access to data and documents. All while providing a tamper proof system less reliant on intermediaries. Maersk expects this solution to reduce friction, saving them billions of dollars annually [4].

Summarizing the above, we can break down the development of blockchain logistic technology by time periods:

– 2018-2025: The beginning of the process of mass implementation of blockchain logistic technology; a sharp increase in the number of organizations using blockchain technology, up to 25%; a widespread reduction of jobs associated with the use of new technologies. At the same time, reducing logistics costs, simplifying logistics;
– 2026-2035: An increase in the number of organizations using blockchain logistics technologies, up to 70% leaving the communications market with the inability to compete in the market;
– 2036-2050: The use of blockchain technologies as an everyday tool, the emergence of competitive digital technologies that further simplify logistics processes.

The introduction of blockchain logistic technology makes it possible to save data in a small amount, protect documents from fraudsters, and prevent the possibility of changing digital information about the transportation process. This system can definitely reduce the delivery costs of suppliers and reduce the likelihood of fraudulent actions, while saving financial resources for all participants in logistics processes.

Thus, the technology opens up new opportunities that allow business owners not to worry about product delivery, but to optimize the process in order to significantly reduce operating costs. Technology is able to solve all the existing problems that slow down the development of a business. If its capabilities are ignored further, shippers and carriers will continue to lose money or, at the very least, miss an opportunity to become more efficient.

And the last technology to consider is cloud services. Cloud services are used in all sectors of the economy, including logistics. Correctly built logistics at the enterprise, supported, among other things, by the use of online resources, will help not only reduce production costs, but also increase employee productivity, optimize work with buyers and suppliers of goods, and properly organize accounting and control of operations.

In a general sense, cloud services (technologies) can be understood as a model for providing network access to a common pool of configurable computing resources (servers, applications, storage systems, etc.) that can be quickly provided and released with minimal efforts to manage and the need to interact with the provider.

There are currently three models cloud computing services:

1) software as a service (Software as a Servise, SaaS): the consumer is provided with software - provider applications running on the cloud infrastructure;

2) platform as a service (Platform as a Service, PaaS): the consumer is provided with tools for deploying their applications on the cloud infrastructure, developed using the tools and programming languages supported by the provider;

3) infrastructure as a service (IaaS) - the consumer is provided with data processing, storage, networks and other basic computing resources on which he can deploy and run arbitrary software, including operating systems and applications [5].

The cloud market has grown steadily over the past few years. According to information technology market research and consulting company "Gartner", the global cloud adoption market exceeded a total of US $ 330 billion in 2020.

In 2020, companies are moving en masse to the cloud to save money, become more agile, and drive innovation. According to analysts, this trend will continue next year. The cloud technology market will grow by 30% every year until at least 2025. Global cloud spending will grow 7 times faster than total information technology spending.

The advantage of the cloud space is that it allows you to be fast and mobile, which is especially important when you need to process a large flow of information in the shortest possible time. For example, an employee goes on a business trip to another city and receives up-to-date information and information that occurs in the company in his absence, he performs tasks promptly, there is no need to waste time - everything can be done here and now.

So, in 2021-2025, the main trends in the development of the cloud market will be:

1. Flexible serverless computing. The cloud serverless method is a technique for implementing functions in the cloud on a required basis. Enterprises rely on serverless computing because they are able to run the core product without the need to operate or manage servers;

2. Hybrid cloud. The hybrid cloud will take center stage. According to Gartner, the global public cloud services market is expected to grow by almost 17 percent, with a total market size of US $ 266.4 billion by 2022. This is a staggering increase from US $ 227.8 billion in the previous year;

3. Containers and Kubernetes (open source orchestration software for containerized applications). For many years, containers have been the standard for developing applications in the public cloud. Gartner predicts that by 2023 most organizations will have more than two centralized applications.

Thus, cloud logistics is developing and will develop very quickly. So due to the fact that a pandemic happened in 2020, it was necessary to go online, many companies realized that it was time to move the entire infrastructure to the cloud, the need for capacity increased, and it was necessary to find a way to reduce costs, therefore, all factors point to the development of cloud servers.

Summing up, we come to the conclusion that modern information technologies will maximize the automation of decision-making at all stages of logistics and supply chain management. Their development and implementation in the logistics system is an integral part in the 21st century. Using the example of trends, one can understand that without cooperation of information technology and logistics, a good result of supplying products to the consumer today is impossible, but logistics keeps up with the times and gradually introduces information technologies to ensure the effectiveness of its development. Logistics is a complex and multifunctional process, and the introduction of information technologies in logistics and chain management in the 21st century is inevitable, as they fulfill their main tasks, namely, order management.

REFERENCES

1. Logistic Industry Innovations with IoT [Electronic resource]. – Access mode: https://www.digiteum.com/internet-of-things-logistics/. – Date of access: 2021.04.03.

2. Efficiency in a Challenging Environment: Why Supply Chain Transformation Is Necessary for Businesses [Electronic resource]. – Access mode: https://www.pwc.ru/ru/assets/pwc-tsepochki-postavok.pdf. – Date of access: 2021.04.03.
3. "Internet of Things" (IoT) in Russia, Technology of the future, available now [Electronic resource]. – Access mode: https://www.pwc.ru/ru/publications/iot/iot-in-russia-research-rus.pdf. – Date of access: 2021.04.03.
4. Blockchain in Logistics [Electronic resource]. – Access mode: https://medium.com/gochain/blockchain-in-logistics-e06c023d042e. – Date of access: 2021.04.03.
5. Cloud technologies in logistics: a brief overview and the possibilities of domestic Internet resources [Electronic resource]. – Access mode: http://elib.mitso.by/bitstream/edoc/184/1/26-30.pdf. – Date of access: 2021.04.03.

Economics

UDC 336.774.54

ADMINISTRATIVE METHODS OF REDUCING THE DEBT LOAD WITH THE PURPOSE OF INCREASING THE STABILITY OF THE ECONOMIC SYSTEM

D. DMITRYEV, N. SHUMSKAYA
Belarusian National Technical University, Minsk, Belarus

The problem of increased debt burden in the economy in a recession. Types of lending, their impact on the growth of leverage. Methods of deleveraging in the economy.

Introduction. In April 2020 the International Monetary Fund prepared a report " WORLD ECONOMIC OUTLOOK ", one of the issues of which was the possibility of mitigating the impact of global financial shocks using macroprudential regulation. One of the important methods of macroprudential regulation in the economy is the process of reducing the share of borrowed funds in circulation also called deleverage. And despite the fact that the reduced debt load of the economy increases their stability against the financial recessions, the process of reducing the debt burden in the economy is a rather painful for elements of the economic system. The search for possible mitigation methods is the goal of this work.

Materials and methods. To find methods for mitigating deleveraging in the economy, the essence of the mechanism for the emergence of an excessive debt burden in the economy have been studied. The leverage ratio in an economy is the ratio of total debt to income. As long as the growth in own income exceeds the growth in total debt, such a debt burden, is considered feasible. In this case, a loan is only a more efficient way to redistribute resources in order to obtain more capital. To find the sources of a disproportionate increase in the level of total debt, various forms of lending have been considered, the most significant of which for us is a commercial loan. A distinctive feature of this type of lending is the transfer by the lender of the loan to the borrower through the transfer of various goods or services. This type of loan, or rather its short-term version, is often used by banks or other credit organizations in relation to individuals in order to finance the purchase of products, which cannot be a source of income to repay the loan.

Results and discussion. Restriction of commercial lending by administrative methods is not widespread in modern economic systems, primarily because it reduces the purchasing power of the population, which makes it possible to classify it as deflationary mechanisms. In addition, it should be noted that this mechanism is not a mechanism of deleveraging due to the almost complete insolvency of the population at the stage of reducing the debt burden, but is used for a smoother entry into the stage of deleverage. At the stage of deleveraging it shall be replaced by cost reduction. Similarly to other deflationary methods, it can be counterbalanced by an inflationary method such as issuing money. The very measures of administrative restrictions on commercial lending may include differentiation of refinancing rates for different types of loans, legislative restrictions on the issuance of short-term loans, legislative restrictions on the issuance of loans to borrowers with a high debt burden, as well as a complete ban on the issuance of loans of this type for a certain period.

Conclusion. Timely use of this type of administrative restrictions can have a positive effect on the economy and reduce the economic recession at the time of reducing the economic burden, however, untimely or too strong intervention can disrupt the continuity of the turnover of funds in the economy, especially if it does not have a full-fledged credit system and does not have the necessary administrative basis.

REFERENCES

1. WORLD ECONOMIC OUTLOOK APRIL 2020 [Electronic resource] https://www.imf.org/-/media/Files/Publications/WEO/2020/April/Russian/text.ashx. – Date of access: 12.04.2020.
2. Macroprudential regulation [Electronic resource] https://www.nbrb.by/finsector/financialstability/macroprudentialregulation. – Date of access: 12.04.2020.
3. Азбукин, А.В. Коммерческий кредит. Особенности функционирования и дальнейшего развития России [Electronic resource] https://dlib.rsl.ru/viewer/01003234547#?page=1&view=list. – Date of access: 12.04.2020.
4. Л.В. Аридова, БАНКОВСКАЯ СИСТЕМА, ЕЁ КРЕДИТОВАНИЕ — ИНСТРУМЕНТ ГОСУДАРСТВЕННОГО РЕГУЛИРОВАНИЯ ЭКОНОМИКИ ПРЕДПРИЯТИЙ [Electronic resource] http://www.unn.ru/pages/e-library/vestnik/99990193_West_econ_finans_2005_1(7)/33.pdf. – Date of access: 12.04.2020.
5. Dalio, R. How the Economic Machine Works [Electronic resource] https://www.bridgewater.com/how-the-economic-machine-works. – Date of access: 12.04.2020.

UDC 330.4

THE PROBLEM OF ECONOMIC INTERPRETATION OF FRACTIONAL DERIVATIVES

A. KOZLOV
Academy of Public Administration under the President of the Republic of Belarus, Minsk, Belarus
E. MELNICHUK
Polotsk State University, Belarus

The paper raises the problem of a possible economic interpretation of one of the mathematical objects that are widely studied today - fractional derivatives (Riemann-Liouville, Caputo, Marchot, conformable fractional derivatives). Particular examples of the interpretation of such derivatives are given.

One of the classical objects for mathematical modeling of dynamic processes (mechanical, physical, economic) is the derivative of a function. For example, the first-order derivative of the function $Y = Y(X)$ by the factor that determines it X sets the limit value corresponding to this indicator. This value describes the growth of the corresponding indicator per unit of growth of the factor that determines it. The derivative of the function describes such economic concepts as marginal utility, elasticity of supply and demand, marginal costs, marginal productivity, marginal cost, marginal income, marginal demand, and others.

In the last 20-30 years in mathematical knowledge, along with classical derivatives, fractional derivatives have begun to play a significant role (in the sense of Riemann-Liouville [1], in the sense of Caputo [1], in the sense of Marchaud [1], conformable fractional derivatives [2] other).

Let $\alpha \in (0,1)$.

Definitions of fractional Derivatives:

Riemann-Liouville derivative [1]:

$$D^{\alpha}(f(x)) = \frac{1}{\Gamma(1-\alpha)} \frac{d}{dx} \int_{-\infty}^{x} (x-\xi)^{-\alpha} f(\xi) d\xi, \quad -\infty < x < +\infty,$$

where Γ= Γ(x) is the gamma-function of Eiler.

Caputo derivative [1]:

$${}_0^C D_t^{\alpha}(f(x)) = \frac{1}{\Gamma(1-\alpha)} \int_0^x \frac{f'(\xi)}{(x-\xi)^{\alpha}} d\xi, \quad -\infty < x < +\infty.$$

Marchaud derivative [1]

$$D_+^{\alpha}(f(x)) = \frac{\alpha}{\Gamma(1-\alpha)} \int_{-\infty}^{x} \frac{f(x) - f(\xi)}{(x-\xi)^{1+\alpha}} d\xi, \quad -\infty < x < +\infty.$$

Conformable fractional derivative [2]

$$T^{\alpha}(f(t)) = \lim_{\varepsilon \to 0} \frac{f(t + \varepsilon t^{1-\alpha}) - f(t)}{\varepsilon}, \quad t > 0.$$

Many of these derivatives have already received their physical interpretation, and a number of physical processes are actively modeled using the apparatus of fractional integro-differentiation [3]. If we talk about the economic content of such derivatives, then at present there is a significant gap here. Today we are aware of only a few works (see, for example, [4-7]) that allow us to fill it in to some extent. Thus, in the article [7] Tarasova V.V. and Tarasov V.E. the microeconomic meaning of the derivative in the sense of Caputo has been established: it defines the limiting value that describes an economic process with exponential fading memory of the limiting value. In general, according to these authors, fractional derivatives in the sense of Caputo determine [7] economic characteristics (indicators) that are intermediate between the average and marginal indicators.

From the above it follows that today there exists a problem of economic interpretation of fractional derivatives (in the sense of Riemann-Liouville, Marchaud, conformable derivatives), as well as their application in modeling both micro- and macroeconomic processes. A positive solution to this problem in the future will allow scientists, using the apparatus of fractional integro-differentiation, to carry out correct mathematical modeling of economic processes, an adequate description of which previously (using the apparatus of classical mathematical analysis (derivatives of natural order)) was not possible (for example, economic processes related with fading memory of the investigated limiting value).

REFERENCES

1. Самко, С.Г. Интегралы и производные дробного порядка и некоторые приложения / С.Г. Самко, А.А. Килбас, О.И. Марычев. — Минск: Наука и Техника, 1987. — 688 с.
2. Abdeljawad, T. On conformable fractional calculus / T. Abdeljawad // J. Comput. Appl. Math. — 2015. — Vol. 279. — Pp. 57-66.
3. Kilbas, A.A. Theory and Applications of Fractional Differential. Equations. / A.A. Kilbas, H.M. Srivastava, J.J. Trujillo. — Amsterdam: Elsevier, 2006. — 540 p.
4. Тарасова, В.В. Предельная полезность для экономических процессов с памятью / В.В. Тарасова, В.Е. Тарасов // Альманах современной науки и образования. — 2016. — № 7 (109). — С. 108-113.
5. Тарасова, В.В. Экономический показатель, обобщающий среднюю и предельную величины / В.В. Тарасова, В.Е. Тарасов // Экономика и предпринимательство. — 2016. — № 11-1 (76-1). — С. 817-823.
6. Тарасова, В.В. Предельные величины нецелого порядка в экономическом анализе / В.В. Тарасова, В.Е. Тарасов // Азимут Научных Исследований: Экономика и Управление. —2016. —№ 3 (16). — С. 197-201.
7. Тарасова, В.В. Микроэкономический смысл производных нецелого порядка / В.В. Тарасова, В.Е. Тарасов // Наука и образование сегодня. — 2017. — № 8 (19). — С. 32-39.

UDC 004.942

THE OPTIMIZATION OF ACTIVITIES OF TRANSPORTATION AND FORWARDING ORGANIZATIONS ON THE BASIS OF INFORMATION SUPPORT

A. ROZINA, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

The article reveals the role of information systems and technologies in increasing the efficiency of the functioning of business entities of the Republic of Belarus in the era of digitalization of the economy; a special place is given to activities of transport and forwarding organizations, as they contribute to the advancement of the material flow for the development of the country's logistic system; the main tasks of the development of information technologies in the logistic system of the Republic of Belarus are highlighted in accordance with the legislation of the country; the characteristics of modern information systems and technologies for transport and forwarding organizations are given; promising directions of information support for the activities of transport and forwarding organizations are proposed to optimize their activities.

XXI century is called the age of information technologies. Therefore, information technologies are rapidly spreading and expanding their potential in almost all areas of human life, and business entities are no exception. With the help of information technologies, new opportunities of using global information space appear, on the basis of which it is possible to solve the problems of managing the activities of economic entities in almost all sectors of the national economy. However, this requires regular assessment of the state of national potential in the field of information technologies in order to identify trends in their development on a global scale, taking into account the requirements of the relevant international standards.

The practice of introducing information technologies into the activities of business entities has a positive effect on the development of the national economy, since they contribute to an increase in the competitiveness of their products (work performed, services provided) both on the domestic and international markets.

The main indicators of information and communication technologies applications in the activities of business entities of the Republic of Belarus (2011-2018) are shown in table 1.

Table 1. – The main indicators of ICT applications in organizations of the Republic of Belarus (2011-2018)

Indicator	Year						
	2011	2012	2013	2014	2015	2016	2018
Number of organizations surveyed	7 469	7 259	7 990	8 316	7 829	7 960	8 080
of them:							
used e-mail	6 953	6 903	7 707	8 065	7 584	7 707	7 776
local area networks	5 505	5 549	6 281	6 751	6 411	6 532	6 444
Internet	7 062	7 030	7 793	8 089	7 611	7 755	7 819
Intranet	1 355	1 338	1 718	1 877	1 819	1 878	2 150
Extranet	437	386	561	677	678	737	1 091
Had a website on Internet	3 748	3 719	4 556	5 175	4 670	4 955	5 433

Note: source [1].

The analysis of the data presented in table 1 shows that economic entities of the Republic of Belarus are characterized by a positive trend in the introduction of information and communication technologies into their activities.

Against the background of digitalization of all spheres of human activity, special attention is paid to information technologies, as they contribute to the sustainable development of the logistic system of the Republic of Belarus with the creation of an appropriate infrastructure to improve the quality of logistic services and involve business entities in international logistic schemes for promoting goods to the world market. Therefore, one of the primary directions of the country's development in the era of digitalization of the economy is logistics, since it is aimed at optimizing costs when promoting goods to the world market with the subsequent provision of their competitiveness.

The main legal document regulating the strategic directions of the development of the logistic system of the Republic of Belarus is the Resolution of the Council of Ministers of the Republic of Belarus dated December 28, 2017 No. 1024 "On approval of the concept of development of the logistic system of the Republic of Belarus

until 2030". In this concept, an important place is given to the development of information technologies in logistics, that is, the digitalization of logistic activities.

For the further development of systems and standards of information interaction on the international and national markets of commodity circulation, this Resolution identifies the following main tasks:

– the transition to electronic technologies of document circulation along sustainable chains of commodity circulation in the logistic system;

– the formation of a unified digital platform of the logistic system of the Republic of Belarus on the basis of integration interaction with international information systems;

– the adaptation of the digital infrastructure of transport corridors with international information systems;

– the unification of standards for information exchange of data between participants in the logistic system;

– the use of electronic forms of shipping and commercial documents for international transportation of goods by various modes of transport;

– the development of the electronic exchange trading system in the provision of logistic services [2].

Consequently, information and communication technologies are a very promising area of modernization of the country's logistic system to ensure its sustainable development.

In today's globalized economy, modern information systems and technologies contribute to the creation of a single information space for all participants in the international supply chain.

Taking into account the geographical coverage of logistic services, and, in particular, international cargo transportation, it should be noted that it is transport as a component of the international supply chain that is the most geographically distributed sector of the economy, the effective activity of which depends on the use and development of information and communication technologies. For this reason, the main feature of the transport infrastructure is its high technological dependence.

If we consider information technologies in transport for cargo transportation, then it should be noted that any transport and forwarding organization is associated with the processing of a large volume of information flow, including information about the transported cargo, accompanying documentation, coordination of routes and modes of transport, etc. with high-quality provision of services for cargo transportation, transport and forwarding organizations need to promptly with a high level of service, provide customers with the necessary relevant, reliable and timely information.

An important place in the provision of freight forwarding services today is occupied by tracking the process of cargo transportation in real time throughout the entire route of the movement of vehicles up to the direct recipient of the cargo using a GPS navigation system, which makes it possible at any time to know about the location of each vehicle.

To optimize the activities of transport and forwarding organizations and increase the efficiency of their functioning, the following main specialized information systems and technologies are distinguished in the form of software products that contribute to effective transport management in the implementation of cargo transportation:

– TMS – Transportation Management System;
– Gonrand – system of selection of cargo transportation;
– Videotrans – Belgian freight picking system;
– CTC – Swiss system of selection of cargo transportation;
– Espace Cat – French system of selection of cargo transportation;
– BKS – system of selection of cargo transportation [3–5].

General characteristics of these software products are presented in table 2.

Table 2. – Specialized information systems and technologies for transport and forwarding organizations

Name	Characteristic
1	2
1. TMS	The transport management system, which provides the calculation of the cost of transportation by various types of transport (when organizing multimodal cargo transportation), aggregates customs costs and data on loading and unloading operations, and monitors transportation times. One of the tasks of the system is the prompt issuance of information upon request about the location of the cargo, as well as the timing of its delivery.
2. Gonrand	A system for the selection of cargo transportation, one of the tasks of which is to collect information about the availability of cargo. This system continuously receives information from both the carriers (about free carriage possibilities and the direction of transportation) and from the consignor. Further, in the system, information is grouped by cargo, by sender, recipient, number of places and gives information about the shipment, name of the consignee, car number, customer, etc.

The ending of table 1

1	2
3. Videotrans	The Belgian freight picking system designed to provide information services to transport organizations that can receive certificates and enter information about the availability of vehicles or goods for delivery.
4. CTC	The Swiss system for the selection of cargo transportation, providing for forwarders information about the availability of goods, types of vehicles, routes of the most rational movement, addresses of transport companies that have free rolling stock, etc. For carriers, the system provides the following information: the ability to load the cargo, the address of the sender, the place and time of loading, the time of arrival with the cargo, the address of the recipient and other data.
5. Espace Cat	The French system for the selection of cargo transportation, which informs the user of the parameters of the transported goods and the schemes of their placement in the body of the vehicle, presenting this data in the form of three-dimensional graphs. The system calculates the parameters for optimal packaging.
6. BKS	Freight selection system. This system functions in the same way as the "CTC" system. Here, the shipper is not in contact with the carrier, but with the information system. The organization guarantees payment to carriers for the performed transportation, if the customer did not make timely payment, which increases the attractiveness of the service, thereby expanding the coverage of the consumer market.

Note: authoring based on sources [3-5].

From the analysis of the data in table 2, it follows that the list of information systems and technologies used in the activities of transport and forwarding organizations is wide enough and has its own specific features for the development of the logistic system of a particular country.

The introduction of specialized information systems and technologies in the activities of freight forwarding organizations plays a significant role, taking into account the specific features of their work, and this affects the optimization of costs and time in managing the entire cargo transportation process and, accordingly, the efficiency of decision-making on current tasks.

However, today, in the Republic of Belarus there are a number of bottlenecks that reduce the pace of implementation and development of modern information systems and technologies in the activities of freight forwarding organizations.

To increase the efficiency of the functioning of the logistic system of the Republic of Belarus in general, and transport and forwarding organizations in particular, it is necessary:

– revise the pricing policy of transport and logistic centres;

– to stimulate the attraction of private, including foreign investments in the development of transport and logistic infrastructure;

– to develop and implement automated systems for managing cargo flows based on international standards;

– to establish partnerships in other states in order to improve the system of cargo transportation management and information support of transit cargo flows;

– revise the transport and forwarding policy and the national legal framework in the field of transport and logistic activities with its subsequent harmonization based on international standards.

Thus, a comprehensive solution to the problems of information support of transport and forwarding organizations and the logistic system of the Republic of Belarus through the introduction of modern information systems and technologies in them will contribute to the creation and strengthening of stable positions, expanding the geography of the provision of logistic services in international supply chains, as well as optimizing the activities of transport - forwarding organizations and increasing their competitiveness in the world market. As a result, this will be able to act as a stimulating factor for attracting foreign investments into the logistic system of the Republic of Belarus with a subsequent increase in the volume of transit cargo transportation, due to the convenient and favourable geopolitical position of the country.

REFERENCES

1. Informatsionno-kommunikatsionnyye tekhnologii [Electronic resource]. – Mode of access: https://www.belstat.gov.by/ofitsialnaya-statistika/makroekonomika-i-okruzhayushchaya-sreda/informatsionno-telekommunikatsionnye-tekhnologii/. – Date of access: 2021.04.12.

2. Ob utverzhdenii Kontseptsii razvitiya logisticheskoy sistemy Respubliki Belarus' na period do 2030 goda: Postanovleniye Soveta Ministrov Respubliki Belarus' ot 28 dekabrya 2017 g. № 1024 [Electronic resource]. – Mode of access: https://pravo.by/document/?guid=3871&p0=C21701024. – Date of access: 2021.04.12.
3. 1C:TMS Logistika. Upravleniye perevozkami [Electronic resource]. – Mode of access: https://itob.ru/products/1c-tms/. – Date of access: 2021.04.12.
4. Produkt: Gonrand [Electronic resource]. – Mode of access: https://www.tadviser.ru/index.php/Продукт:Gonrand. – Date of access: 2021.04.12.
5. IT-sistemy logistiki i gruzoperevozok [Electronic resource]. – Mode of access: https://www.reartek.com/it-sistemy-logistiki/. – Date of access: 2021.04.12.

UDC 658.5

RISKS OF SECURITIZATION OPERATIONS IN THE ORGANIZATION'S INTERNAL CONTROL SYSTEM

E. ZAHAROV, L. MASKO
Polotsk State University, Belarus

The article deals with the concept of risks of securitization operations in various classifications with the division into categories and groups, as well as risks of protection systems and mechanisms for their reduction.

Introduction. The effectiveness of the functioning of economic entities largely depends on the quality of organized control, since it is intended not only to identify shortcomings and violations, but also to prevent them, as well as to facilitate timely elimination. Internal control is the most important part of a modern management system that allows you to achieve the goals set by the owners, with minimal expenses. The relevance of the research on the risks of securitization operations in terms of internal control is due to the fact that risks have a direct impact on the financial result of the operation, on the completeness and accuracy of the reflection of securitization results in the accounting system. Securitization of transactions is definitely followed by risks. In this regard, when organizing accounting for securitization operations, it is not always possible to use the existing risk classifications, since they are not universal and do not take into account the specifics of operations. Therefore, the development of a classification of securitization risks in the organization's internal control system is of particular relevance and practical significance.

Reliable accounting of securitization transactions requires special knowledge and experience, including the understanding of "the characteristics and risks of the industry in which the client operates" [1]. 42 literary sources of domestic and foreign economists including 5 tutorials were studied. In the course of research.

The economic environment is actively discussing the concept of "risk". It is defined as danger, as volatility (volatility), or as uncertainty. There is an opinion that risk is an independent category. According to Donaldson's definition, risk is generally a probable loss. Downes and Goodman specify this definition by adding a measurability category, and define risk as measurable probable real damage and / or lost profits.

The purpose of this research is to study the risks peculiar to securitization operations and to develop their classification for the purposes of the organization's internal control system, minimizing them, which in its turn will allow to avoid distortions in accounting and reporting when reflecting securitization operations.

Research methods. The research methods are: synthesis, analysis, comparison, logical generalization, reasoning by analogy, classification and grouping.

Main part. The complexity of the securitization transaction, and the lack of development of regulatory legal documents make it necessary to involve a large number of participants. In practice, the presence of representatives of different parties of the transaction is necessary, among other things, to reduce the risks that will be discussed below.

A distinctive feature of securitization is its dependence on the risk management system. Operational risks are presented throughout the entire cycle of the securitization transaction. These risks are determined by the lack of significant experience in conducting such operations and the ongoing stage of optimizing business processes and debugging information systems.

As we have already stated, at the moment there is no common definition of risk. For example, E. S. Stoyanova and M. G. Stern define risk as "the probability of losses or non-receipt of income in comparison with the predicted option". L. N. Tepman claims that the risk is "a threat, a risk of damage". A more detailed definition is put forward by V. V. Kovalev, who believes that the risk is " the level of financial loss expressed by:

- the possibility of not achieving the goal;
- the uncertainty of the predicted result;
- the subjectivity of the assessment of the predicted result [2].

In our opinion, the most accurate definition is given by R. Copps, who considers that risk is "the possibility of losses due to the occurrence of a certain event" [3].

Thus, according to the results of the conducted research, we think that the risks of securitization operations are the probability of an event that may affect the achievement of the set goals, including the financial result of the transaction. The novelty of this definition is that it takes into account that risk must be distinguished from losses, which can be calculated, whereas risk is a probability that can only be evaluated by experts. In other words, risk is the probability of loss.

In order to assess and effectively manage the level of risk, it is necessary to be able to correctly group risks. The most well-known classification of securitization risks was proposed by H. P. Baer, who distinguished coverage

risks, that is, the risks of the allocated asset itself, as well as securitization risks, or risks that directly depend on the chosen method of structuring, which is determined by the legal complexity of securitization, the use of a large number of financial instruments and a variety of participants.

Consider the classification of securitization risks by Baer in Table 1.

Table 1. – Classification of securitization risks by H. P. Baer

Classification feature	Class/ Group
1. Coverage Risks	- Credit risk is the risk of late performance of obligations to pay the principal and accrued interest (including the risk of default of the borrower, the risk of devaluation of collateral on the loan); - Early repayment risk – the risk of the investor receiving the full or partial amount of funds before the agreed period; - Reinvestment risk – the risk of lower interest rates when reinvesting capital in case of an early return of funds.
2. Legal and regulatory risks	- The risk of government intervention is the establishment of direct or indirect barriers to securitisation transaction on the part of public authority; - Risk of non-recognition of the transaction by the supervisory authority, including non-recognition of the write-off of assets from the originator's balance sheet; - Documentation risk – incomplete documentation provided.
3. Risks of the structure and flow of payments	- Operational risk is failure of computer programs, errors in payments and money transfers; - Fraud risk is the risk of selling non-existent claims.

Note: own development based on the study of economic literature

In our opinion, the main disadvantage of this classification is the lack of division into financial and legal risks. The latter is of a great importance, as the legal risks vary depending on the jurisdiction.

In terms of accounting, the risks associated with securitization are mainly classified as it is done in IFRS 7 "Financial Instruments: Disclosures". Consider them in Figure 1.

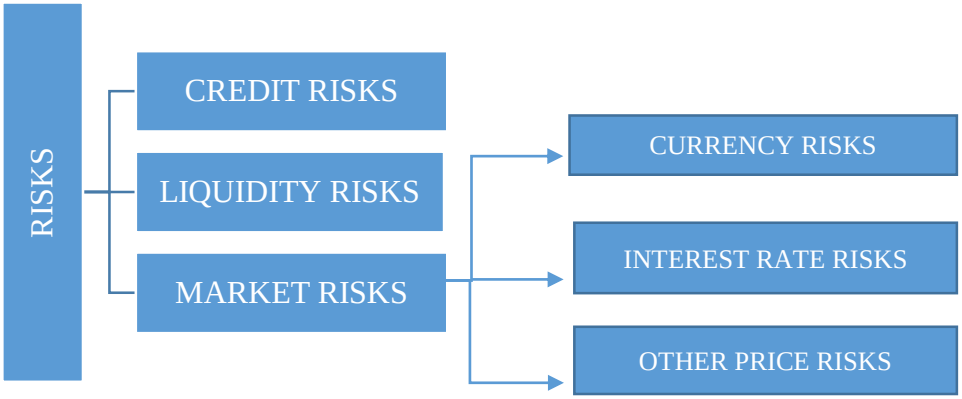


Fig. 1. – Classification of risks in accordance with IFRS 7 " Financial instruments: Disclosure of information"

Due to its essence, credit risk, liquidity risk, market risk and its components characterize the economic reasons for the occurrence of uncertain situations that can cause accounting data misstatements.

Legal risk is the possibility of changes in legislation that infringe or restrict the rights and interests of the parties to the transaction. Perhaps, securitization operations are most exposed to legal risk compared to other financial instruments, since the term of circulation of securities during securitization is often ten or more years. The duration of the appeal and the complexity of the transaction structure bring legal risks into the main group of risks that threaten the transaction.

Tax risks, partly being legal (related to gaps in tax legislation), in terms of the consequences of the occurrence of risk events have an impact on the financial result. Incorrectly calculated amounts of taxes can cause penalties that will reduce the financial result.

Taking into account the importance of legal and tax risks in the accounting of securitized assets, it is proposed to supplement the classification established in IAS 7 with legal and tax risks. Consider them in Figure 2.

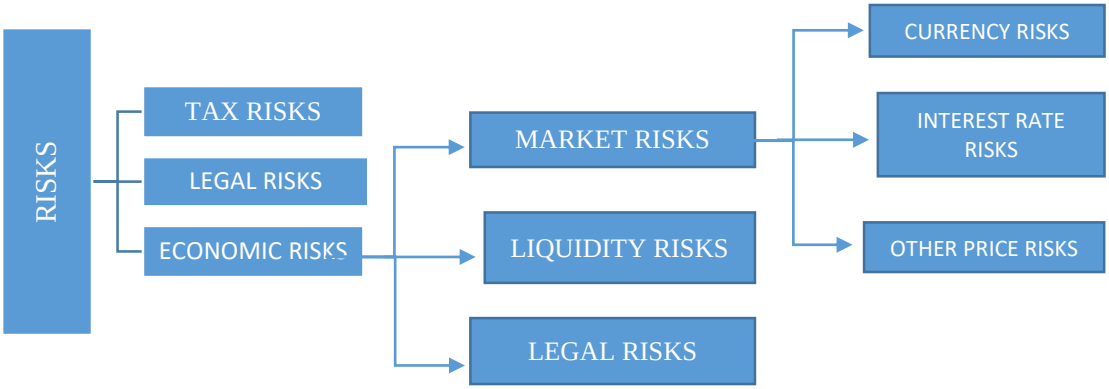


Fig. 2. – Proposed classification of risks in the organization's internal control system

Thus, the proposed classification will allow us to obtain a more accurate assessment of the risks associated with securitization operations and, accordingly, to develop methods to minimize them.

To form reliable accounting statements or any other financial information, it is important to understand what exactly can be distorted.

Distortions in the accounting and reporting of the enterprise in terms of reflecting securitization operations can be associated with the following risks:

– risks associated with the recognition, completeness and accuracy of the accounting for assets and liabilities related to securitization operations;

– risks associated with the valuation of the objects of securitization transactions;

– risks associated with the recognition of income and expenses (gains and losses) related to securitization operations;

– risks associated with the correct reflection of cash flows related to securitization transactions;

– risks associated with the disclosure of securitization information.

To understand what substantive procedures can be developed in the future when conducting accounting for securitization operations, it is advisable to make a classification table based on the last two classifications considered, in which the rows will correspond to the types of risks, the columns will correspond to the types of risks due to their causes, the marks at the intersection of the rows and columns will determine the need to develop and include in the program the actions aimed at confirming the risks that affect potential distortions. Consider the classification table of the risks of securitization operations in Table 2.

Table 2. – Classification table of types of risks of securitization operations

Risks of misstatement of financial information	Risks in terms of their causes						
					Market prices		
	Legal risks	Tax risks	Credit risks	Liquidity risks	Currency risks	Interest rate risks	Other price risks
1	2	3	4	5	6	7	8
1. Risks associated with the recognition, completeness and accuracy of accounting for assets and liabilities related to securitization operations	+						
2. Risks associated with the valuation of the objects of securitization transactions		+					

The ending of table 1

1	2	3	4	5	6	7	8
3. Risks associated with the recognition of income and expenses (gains and losses) related to securitization operations			+				+
4. Risks associated with the correct reflection of cash flows related to securitization transactions				+		+	
5. Risks associated with the disclosure of securitization information					+		

Note: own development based on the study of economic literature

Filling in the classification table in the form in which it is presented in Table 2 allows you to prioritize the development of a program of procedures for minimizing risks in securitization transactions, for further reflection in accounting and reporting. Consider how structuring helps to minimize different types of risks in Table 3.

Table 3. – Types of risks and methods of their minimization in securitization transactions

Types of risks			Methods of minimizing
Legal risks			Identified and minimized with the help of legal consultants
Tax risks			Identified and minimized with the help of tax consultants
Credit risks			Credit reinforcement, credit selection criteria Requirements for portfolio parameters High quality assurance High quality of the service company
Liquidity risks			The risk is minimized through a proper pricing policy. At the same time, they proceed from the basic rule: the higher the spread is (the difference in price) that the dealer holds between the sale price and the purchase price of the paper, the higher the liquidity risks.
Market prices	Currency risk		Currency risk occurs when securities are denominated and payable in a currency other than the currency in which the underlying asset is denominated and payable. The ruble is set as the currency in the selection criteria
	Risks of offsetting claims		Loans to individuals with deposits in the bank are not included in the portfolio Creating special reserves
	Interest rate risk	general interest rate risk	Using interest rate swaps
		the risk is that changes in interest rates will lead to early repayment of obligations by borrowers, the clams that are passed to the SPV	Rating system Proper examination of the transaction Subordination of investors Prohibition on early repayment Introduction of sanctions for early repayment
	Early repayment risk / reinvestment risk		Rating system Proper examination of the transaction Subordination of investors Prohibition on early repayment Introduction of sanctions for early repayment
	Risk of payment delays		Liquidity Providers Reserve funds

Note: own development based on the study of economic literature

Taking into account the results of the study, it can be concluded that understanding the risks of possible negative consequences is necessary at all stages of internal control of the organization: planning; assessment of the accounting system. Conducting analytical and detailed procedures will help you assess the risks and minimize them in the best way.

Conclusion. In the context of risk-based securitization, it is important to organize internal control, which is based on a risk-based approach.

When conducting securitization operations, it is necessary to take into account the general rules of risk management, including two basic conditions for effective management:

1) the risk assessment should be as accurate as possible. It is impossible to overestimate or underestimate certain factors;

2) the difference between risk and loss must be taken into account.

The conducted study of the risks of securitization operations allowed us to offer:

– the author's definition of securitization risks;
– the author's classification of securitization risks in the organization's internal control system;
– the author's development of the classification of risks and methods of their minimization in securitization operations.

The practical significance of the conducted research is that these proposals will allow to identify the risks that affect the occurrence of uncertain situations that may cause misstatements of accounting data these proposals will help, to minimize them, which in its turn will make it possible to avoid misstatements in accounting and reporting when reflecting securitization operations.

REFERENCES

1. Федеральное правило (стандарт) № 8 "Понимание деятельности аудируемого лица, среды, в которой она осуществляется, и оценка рисков существенного искажения аудируемой финансовой (бухгалтерской) отчетности" (ред. от 19.11.2008 № 863, от 27.01.2011 № 30).
2. КОВАЛЁВ В.В. Финансовый анализ: Управление капиталом. Выбор инвестиций. Анализ отчетности / В.В. КОВАЛЁВ. – Москва: Финансы и статистика, 1997. - 512 с (с. 8).
3. COPPS R.C., Credit and Market Risk: an Analysis of Capital requirements for Banking Institutions, Ph.D. Thesis, Rijksuniversiteit Groningen, 1997г. стр. 13.
4. Об установлении общих требований к правилам внутреннего контроля [Электронный ресурс]: постановление Совета Министров Республики Беларусь от 24.12.2014 № 1249 // Национальный реестр правовых актов Республики Беларусь от 31.12.2014г. № 5/39931.

Economics

UDK 33.339

THE WORLD MARKET OF SERVICES: FEATURES AND TRENDS OF DEVELOPMENT

A. AVRAMENKO, D. HLADKAYA, N. SHUMSKAYA
Belarussian National Technical University, Minsk, Belarus

The global market of services is one of the fundamental aspects of modern international financial relations, despite the fact that it is still in a period of intense development, which is occurring at a rapid pace.

The main part. Trading activity is one of the most promising fields in the global economy. As the trading market expands with goods, the need for services increases.

Goods that are sent to the global market are the main part of many countries' exports. As statistics show, the global market of services is one of the fastest growing sectors in the global economy.

It consists of many narrow "specialized" markets, due to the variety of services. Services typically include transportation, communications, trade, logistics, sales, and so on.

According to the International Monetary Fund, in 1994 all types of services were estimated at 11 thousand billion dollars.

Their total volume was about 25% of the total value of world exports, and in 1997, this value increased, according to rough estimates, by another 30%.

Let's take into account the reasons driving the rapid growth of the global market for services:

– a moderately high standard of living, which increases the demand for services;

– the development of all types of transport that stimulate international mobility, whether entrepreneurs or ordinary people;

– new forms of communication that allow the replacement of personal communications between sellers and buyers;

– the accelerated process of expanding and deepening the international division of labor, which leads to the formation of new types of activity, most of all, in the non-productive sphere.

It can be concluded that the service sector largely controls production, which in turn is a strong driver for the development of any economy that specializes in it.

Due to the outbreak of COVID-19, many of them (enterprises) have experienced a significant drop in their incomes during 2020, and some have even been forced to stop or close permanently.

The consideration of the trends of development of the global services market in recent years shows:

– the share of tourism has increased in the export of services, which means an increase in the income of the population and an improvement in transportation;

– the share of shipping and other road transport services decreased (from 21.9% in the 1990s to 18.7% in 2009), which is related to a decrease in the share of materials in world trade;

– there is an increase in information and computer services, which is the result of innovative work in this area;

– services have developed in the field of remote work as well, nowadays, it is possible to do a lot, order or choose anything while you are at home;

– according to the rate of noticeable increase and in terms of importance in the total volume of global exports of services, the main sector (44.7%) and the most developed was the "personal services sector", which includes financial, insurance, auditing, consulting and other services.

Conclusion. Thus, we can conclude that the current international trade in services is growing rapidly, having a significant impact on the formation of the world economy as a whole and it fully assumes great importance in the public life of all nations.

And even despite the fact that COVID-19 had a very strong impact on the global service market, it had its opportunity to develop through opening new opportunities for online trade in services, and in general, modernization of trade, thus being at an excellent level even during the epidemic.

REFERENCES

1. https://cutiemay.ru/en/novosti/vneshnim-priznakom-mirovogo-rynka-yavlyaetsya-mirovoi-rynok-i-mirovoe/. – Date of access: 18.04.2021.
2. https://newmagazineroom.ru/en/nalogovaya-sistema/glavnym-vneshnim-priznakom-sushchestvovaniya-mirovogo-rynka-yavlyaetsya/. – Date of access: 18.04.2021.

3. https://solydus.ru/en/glavnyi-vneshnii-priznak-sushchestvovaniya-mirovogo-rynka-mirovoi.html. – Date of access: 15.04.2021.
4. https://international.groupecreditagricole.com/en/international-support/germany/economic-overview?url_de_la_page=/fr/accompagnement-a-l-international/allemagne/contexte-economique&. – Date of access: 13.04.2021.
5. https://www.spglobal.com/en/research-insights/featured/economic-implications-of-coronavirus. – Date of access: 18.04.2021.

Economics

UDC 339.138

BRANDING ACTIVITIES OF RESIDENTS OF THE REPUBLIC OF BELARUS AS A MARKETING STRATEGY

T. SHUNTO, E. BOGDANOVA
Polotsk State University, Belarus

Brands characterize the lifestyle, the value system of an individual or group, reflecting and influencing social processes. The results of the brand value assessment show the effectiveness of branding in the organization. For the company, the presence of a brand is the basis of competitiveness and development in the market. This article analyses the branding activities of residents of the Republic of Belarus.

«A brand is the intangible sum of the properties of a product: its name, packaging and price, history, reputation and method of advertising. A brand is also a combination of the impression it makes on consumers and the result of their experience in using the brand» [1, p. 11].

The brand is an effective economic tool that allows companies to generate high revenue and ensure the expansion of sales markets. The brand is, first of all, the guarantee of a certain set of positive properties of the product, reliability, convenience and simplicity of choice for the buyer, as well as the benefit that a person buys together with the product or service.

The modern interpretation of the concept of «brand» includes all consumer associations that arise in connection with the product because of the acquisition of their own experience, public approval and advice from others. The consumer's consciousness forms an image that combines various characteristics of the brand associated with its name, symbol (e.g. Nike logo), packaging (the shape of a bottle of Coca-Co1a), advertising character (rabbit Quiky, Nesquik), melody (Intel, Eigore +). Some of the other crucial characteristics are the organization of communications at the point of sale, the experience of previous purchases and the degree of satisfaction with the quality of the product, as well as feelings and emotions caused by advertising slogans («After all, you deserve it», L'ogea! or «We make the world a better place», Philips). This is the extended definition of the concept of brand, offered by the American Marketing Association.

In every country of the world, different brands may be positioned differently, but national brands have more influence on the consumer than imported ones.

The development and formation of brands in the Republic of Belarus began in the 90s of the last century, when the country received the status of independence, and the economy began to transition to a market system. The first stage, which dates back to the 90s of the twentieth century, was mainly devoted to familiarization with the concepts of «brand», «branding», understanding the practical meaning of branding, and training specialists. Moreover, in the XXI century, branding has received widespread development in our country – organizations of various industries, forms of ownership, and sizes began using it.

Originally, the leaders of branding were organizations of the B2C sector (mainly food and cosmetics industry organisations, as well light industry ones), and then their example was followed by organisations of the B2B sector and the service sector. Belarusian food industry enterprises have always been leaders in exports, so they needed to ensure competitiveness in foreign markets, where branding was already a significant factor in the competition.

Since 2010, MPP Consulting [3] has been conducting annual research on the value of brands in Belarus. Table 1 shows the indicators of Belarusian brands for 2017-2018.

Table 1. – The cost of Belarusian brands according to Belbrand [4]

Brand name	Cost in 2018, USD million	Cost in 2017, USD million	Industry	Place in the rating, 2018	Place in the rating, 2017
1	2	3	4	5	6
Santa Bremor	61,2	57,8	Food production	1	3
Babushkina krynka	56,5	60,5	Dairy industry	2	2
World of Tanks	54,0	78,5	IT	3	1
Savushkin product	49,8	51,2	Dairy industry	4	4
Milavitsa	44,1	51,0	Consumer goods industry	5	5
Krinitsa	40,2	37,5	Beer and non-alcoholic industry	6	8

The ending of table 1

1	2	3	4	5	6
Alivaria	39,7	44,6	Beer and non-alcoholic industry	7	6
Spartac	37,0	41,7	Confectionery industry	8	7
Kommunarka	36,4	33,1	Confectionery industry	9	9
Lidskoe	29,0	23,6	Beer and non-alcoholic industry	10	13

The data obtained showed that 8 out of 10 positions are occupied by brands whose activities are related to food products: food, dairy industry, beer and non-alcoholic industry and confectionery industry. The high valuation of these brands is due to the significant production volumes, as well as the presence of demand and popularity outside the Republic of Belarus. The undisputed leader of the segment and the rating as a whole was estimated by the agency at $61.2 million in 2018. The list also included one organisation from the information technology sector, whose position in 2018 compared to 2017 decreased by two points, and the total value of the brand decreased by 24.5 million US dollars. The absence of organisations of the service industries among the leading brands is typical for the Republic of Belarus, which means that the platform for developing and strengthening its positions is extensive and perhaps in the near future some industries will be able to reach a higher level.

Within a short period, Belarusian organizations have accumulated significant practical experience, which allows us to conclude that there is such a phenomenon as branding in Belarus. Many of the brands created are well known and respected by customers not only in Belarus and the CIS countries, but also in foreign countries. The leading Belarusian brands are "Savushkin product" (currently "Savushkin"), "Babushkina Krynka", "Milavitsa", "Santa Bremor", "Spartak", "Kommunarka". Due to the efforts of the IT company Wargaming, the brand of the computer game World of Tanks has become known all over the world.

The heads of Belarusian organizations understand that the presence of a strong brand gives a significant advantage, allowing them to ensure a stable position in the domestic and foreign markets, to prove their worth in the competition.

The specific features of the national branding activity include the absence of fierce competition in many product categories and, as a result, the possibility of rapid emergence of new brands, as well as their increasing popularity due to a small number of successfully conducted advertising campaigns.

The positive trends include the rapid growth of interest in the branding of domestic manufacturers of goods.

Considering the negative trends, I would like to note the almost complete absence of socially significant new brands. The status of the leaders is also of concern. Thus, according to the same survey conducted by the Novak laboratory, the leaders in the category "Brand - property of the Republic" were "Atlant", "Horizon", "Vityaz", "Belita", "Belvest", etc. However, there is no doubt that their real value is low in the foreign market. Would these brands have taken place if the purchasing power of Belarusians had increased? However, this is one of the most important indicators of sustainable brand loyalty.

Weak points in the formation of the image of the TM are the issues of the budget for its creation and promotion. According to the above-mentioned research on the attitude to branding of domestic manufacturers, 67% of the surveyed enterprises feel an urgent need to conduct advertising campaigns, but note that the existing norms, as well as the attribution of advertising costs to the cost of production, do not allow allocating the necessary budget.

Another negative trend is the growth of the "gray" advertising market. Trying to save money on design developments, on the production of videos, the customer does not always think about the transfer of property copyrights to him, which the agency is obliged to properly issue. In addition, the agency really should own the same rights to the development. Otherwise, eventually, especially when entering foreign markets, the advertiser's losses can reach enormous amounts.

Interactive methods of brand promotion are also developing at a slow pace. If the leading enterprises already have corporate websites, then most state-owned ones still only start using e-mail.

However, I would like to note that, despite a number of constraints, the process of forming a civilized advertising and information space, including in the field of creating new TMs and transforming them into brands, is still developing. Therefore, new brands in various industries are constantly appearing in Belarus, aimed at different segments of consumers. Branding is also developing thanks to specialized marketing and branding agencies that provide services for the creation and promotion of brands, and specialists in this field.

The main factors of the rapid development of branding in the Republic of Belarus are:

– increased competition in the domestic market;
– export development;
– growing customer needs and requests;

- improving the management of organizations;
- development of information technologies.

Currently, several professional competitions are held in Belarus, the purpose of which is to determine the best brands owned by Belarusian companies. First of all, it is necessary to talk about the domestic competition «Brand of the Year» (held by the company «Satio»). The competition «Choice of the Year» is held by the companies FestivalsInternational (USA) and EuropeanMarketingFoundation (European Foundation for Social Research, Brussels, Belgium) with the support of EuropeanChamberofCommerceIndustryandTrade, Brussels (European Chamber of Commerce, Brussels). The contest «Product of the Year» for food products is held by LLC «Publishing House Express-contact». The competition «Brand of the Year» includes, among other categories, a nomination for socially responsible brands.

At the same time, the development of branding in our country faces certain difficulties, among which are:

- lack of understanding of the meaning of branding in a number of organizations;
- insufficient branding funding;
- lack of qualified specialists in this field;
- insufficient amount of research and analysis in the field of branding;
- insufficient methodological basis.

Today, the brand consciousness in Belarus is at the stage of formation. Most manufacturers do not conduct professional marketing research in the market of Belarus and abroad, and the marketing departments of many enterprises are rather sales departments, where there are no necessary market analysts. Belarusian manufacturers underestimate such factors of brand success as stable product quality and communication with the target audience.

Thus, at this stage of branding development in Belarus, the organisation of high-quality systematic work on the development of existing brands is the most important task. High-quality branding can create a positive image and recognition of the country in the international arena. The strongest brands become such only as a result of constant and consistent actions to promote their products.

REFERENCES

1. Огилви, Д. Огилви о рекламе / Д. Огилви. - М. : Эксмо, 2006. – 232 с.
2. Иванов, А.А. Брендинг : учеб. пособие / А.А. Иванов. – Комсомольск-на-Амуре : ФГБОУ ВПО «КнАГТУ», 2013. – 74 с.
3. MPP Consulting – Консалтинговое агентство – [Электронный ресурс]. – Режим доступа: http://www.mppconsulting.com.ua/about.html. – Дата доступа: 10.04.2021.
4. BelBrand 2018 - ТОП 100 белорусских брендов [Электронный ресурс]. – Режим доступа: http://www.mppconsulting.com.ua/ukrbrand/belbrand2018.pdf. – Дата доступа: 10.04.2021.

UDC 338.27

FORECASTING THE UNEMPLOYMENT RATE IN KYRGYZSTAN BASED ON ECONOMIC AND STATISTICAL ANALYSIS

T. SUBANOV
Osh Humanitarian and Padegogical Institute, Kyrgyzstan

As practice shows, unemployment has a greater negative impact on the socio-economic situation of the country, since it leads to underutilization of human capital, which leads to social differentiation, a significant decrease in the social situation of the country. The problems of unemployment have increased especially during the coronavirus pandemic. In many countries, businesses and institutions have been forced to reduce the number of employees due to the pandemic. This, in turn, increased the army of the unemployed and led to social conflicts between the government and the people. In order to stabilize the situation, there is a need to forecast the unemployment rate and take appropriate measures.

According to historical facts, we know that unemployment is one of the problems that has a negative impact on the socio-economic situation. Its is especially confirmed by the historical events during the" Great Depression " in Europe. Unemployment is a fact of underutilization of the country's human capital, which in turn leads to social differentiation, a significant decrease in the social situation of the country. Despite various studies on the problems of unemployment, nowday reducing it is a difficult task.

Indeed, the problems associated with unemployment have been studied by many leading foreign and Russian scientists: J. M. Keynes, M. Spence, M. Friedman, K. Clark, A. Philips, E. Phelps, A. S. Bulatov, V. P. Borovikov etc. The issues of labor market forecasting were considered in the scientific works of R. E. Quandt, D. Hamermesh, E. R. Berndt, A. N. Ananyev, R. P. Kolosova, T. O. Razumova, etc. Despite the research on the problems of the labor market, the issues of forecasting the level of berabotitsa remain insufficiently studied. In this regard, forecasting based on statistical data describing the problems of unemployment should take one of the main places in economic practice, since only on the basis of the results of the forecast can measures be taken to reduce unemployment in the region or country.

In the 90s of the twentieth century, the critical economic situation in the newly created independent states on the territory of the former USSR affected their socio-economic situation. Kyrgyzstan, as one of the former socialist republics of the USSR after gaining independence, failed to respond to the market situation in a timely manner. The country's leadership was not ready to adopt real plans to prevent negative socio-economic phenomena. In our opinion, it was the unpreparedness of the country's leadership, the crisis and its severe consequences in the first years of the country's independence that did not allow us to achieve full market independence. Although, there was an attempt to balance the situation in the country by reforming the management structures of the economic system.

Unfortunately, the second decade of independence, one of these steps was the National Strategic Program of the Kyrgyz Republic on the Integrated Development Framework (CDF) for 2001-2010. (adopted on 29.05.2001). Despite the measures taken, in the conditions of poorly regulated state market relations and the decline in production in the country, the problem of employment and income of the population has sharply worsened; unemployment has exceeded the permissible level.

In those years, due to the lack of new jobs in the country, a significant part of the working-age population was forced to work in low-income personal subsidiary farms, in which employment borders on unemployment. For the period from 2001 to 2005, according to the statistical data of the National Statistical Committee of the Kyrgyz Republic, the number of employed people (2001 -1787,000 people, and in 2005 -1934400 people) was about 20% in state organizations, and 80% in the private sector [2, p. - 67-72]. At the same time, 16.5% of the employed population had higher education, 14.7% had secondary vocational education, and 9.9% had primary vocational education. This means that of the employed population, only 41.1% had a vocational education, and the rest had only a general education. In our opinion, this fact proves the employment of people with general education in low-income personal subsidiary farms. So, the reforms carried out in the second decade of independence did not lead to positive results. As a result, the country found itself in a quagmire of socio-economic problems.

And, the third decade of the country's independence, the situation in the country's economy continued to deteriorate. However, some changes in the situation of small businesses in agriculture, the processing of agricultural products, small wholesale trade and construction have led to a certain shift in the economy. For example, by 2019, the number of people employed in agriculture, forestry, and fish farming amounted to 443.2 thousand people, trade-395.2 thousand people, and manufacturing - 289.2 thousand people and in construction-287.4 thousand people [2, p. 67-72]. But these shifts in the country's economy could not solve the problem of employment in the country.

Table 1. – Employment indicators of the Kyrgyz population from 2011 to 2019

Name	2011	2015	2019
The number of permanent residents of the country, people.	2703686	2916971	31699634
Of these, the able-bodied part of the population, people.	2490100	2544300	2583600
Of these, the number of employees, people	2277700	2352100	2442700
With higher professional education	410600	465600	526300
With secondary vocational education	292700	229100	275500
With primary vocational education	223100	177700	193400
those who do not have a professional education, people.	1351300	1479700	1447500
Of these, officially registered unemployed, people.	212400	192200	140900

According to the National Statistical Committee of the Kyrgyz Republic, from 2011 to 2019, the indicators of the employed population in terms of the level of education in the objects of the Kyrgyz economy also changed slightly. For example, the number of employed people in 2011 was 2277700 people, of which 40.67% are specialists with qualifications, while 59.33% of the employed do not have specialties. The same figures in 2015 were 37.09% and 62.91%, and in 2019 – 40.74% and 59.26%. In our case, these indicators mean that in recent years, the majority of the employed population in the economic sectors is unskilled labor [2, p. 67-72].

Two years have passed since 2019. Since then, the lack of an effective system of employment regulation in the regions still has a negative impact on the demographic situation, working conditions and social status of the country's population. In our opinion, in this situation, we can propose the measures considered in the works of A. S. Bulatov. According to the scientific works of Doctor of Economics, Professor A. S. Bulatov, among the main directions of state regulation of the labor force " we can distinguish: 1) programs to stimulate employment growth and increase the number of jobs in the public sector; 2) programs for training and retraining of personnel; 3) programs for promoting the employment of labor; 4) programs for social insurance of unemployment" [1].

Especially the problem of employment is felt among the rural population. Despite, the fact that rural poverty in Kyrgyzstan is recognized by society as a critical point of national development, so far only partially developed a generally recognized strategy for its solution. This situation is transmitted along the chain to all aspects of economic life, in particular, to the income of the population and its standard of living. According to many scientists, this can be generally reflected in the form of a strategy in the context of three planes: 1) growth of rural income from agricultural employment, 2) growth of income from non-agricultural employment, and 3) migration of rural population to cities. The first strategy assumes the growth of demand for agro-food products at a pace that outstrips the growth of labor productivity in the agricultural sector.

Theoretically F. Engel explained that this is possible only through agricultural protectionism, i.e., protecting the domestic market from imported products and maximizing the promotion of their own products to world markets, as well as maintaining labor-intensive technologies in agriculture [4]. As practice shows, violation of this rule leads to increased migration, as a result of which the number of employed people will decrease. In addition, in our opinion, if the rural population cannot compete in the urban labor market, it will lead to the movement of rural poverty to large cities, regions, and countries. This is confirmed by the history of many countries of the world.

The problems of unemployment increased especially during the coronavirus pandemic (March, 2020). In many countries, enterprises and institutions were forced to reduce the number of employees due to the pandemic. The Kyrgyz industries were in the same situation. This situation, in turn, increased the army of unemployed and led to social conflicts between the government and the people. In such cases, in order to stabilize the situation in the country, it becomes necessary to predict the unemployment rate by the relevant government bodies and take appropriate measures. In our example, based on the statistical data of Kyrgyzstan, we can make a forecast of the unemployment rate for the period from 2010 to 2020 [2].

Table 2. – The unemployment rate in the Kyrgyz Republic from 2010 to 2020, in %.

A country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Kyrgyzstan	8,6	8,6	8,4	8,3	8,0	7,6	7,2	6,9	6,2	5,5	7,5

According to the theory, the unemployment rate of the country, in particular, in Kyrgyzstan (or by region) can be predicted by such a method of scientific research as extrapolation. In practice, we know such extrapolation methods as moving average, exponential smoothing, and least squares [3].

Method I. Forecasting the unemployment rate in Kyrgyzstan using the moving average method. Theoretically, the moving average method is one of the widely known methods of smoothing time series. In practice, using the moving average method, you can eliminate random fluctuations and get values that correspond to the influence of the main factors.

The calculation is performed according to the following scheme:

1. First, we determine the value of the smoothing interval. In our case, we take n= 3;

2. Next, calculate the moving average for the periods using the formula

$M= (y_{t1}+y_{t2}+y_{t3})/n$.

As a result, we get: M_{2011} =8,53; M_{2012}=8,43; M_{2013}=8,23; M_{2014}= 7,96; M_{2015}= 7,6; M_{2016}= 7,23; M_{2017}= 6,76; M_{2018}= 6,2; M_{2019}= 6,4.

3. Next, we first calculate the average relative error using the formula

$$\frac{/y_{ф} - y_{р} /}{y_{ф}} 100, \%.$$

As a result, we get the following digital information: For 2011: - 0,81; For 2012: - 0,357; For 2013: 0,84; For 2014: 0,5; For 2015: 0; For 2016: - 0,41; For 2017: 2,02; For 2018: 0; For 2019 : -16,3.

Next, we build a forecast for the next years using the formula:

$$y_{t+1} = M_{t-1} + \frac{1}{n}(y_t - y_{t-1})$$

y_{2021} = 6,4+1/3(7,5-5,5)=7,06.

Determining the moving average:

M= (6,2+5,5+7,5) / 3= 6,25

y_{2022}= 6,25+1/3 (7,06-7,5)= 6,11.

Determining the moving average

M= (7,5+7,06+6,11) / 3= 6,89

y_{2023} = 6,89 + 1/3 (6,11-7,06)= 6,57.

All the results are entered in table 3:

Table 3. – Calculation of the average relative error by the method MA, %

Years	The unemployment rate, y_t, в %	The moving average, M, в %	Calculation of the average relative error, $\frac{/y_{ф} - y_{р}}{y_{ф}} 100, \%$
2010	8,6	-	-
2011	8,6	8,53	0,81
2012	8,4	8,43	-0,357
2013	8,3	8,23	0,84
2014	8,0	7,96	0,5
2015	7,6	7,6	0
2016	7,2	7,23	-0,41
2017	6,9	6,76	2,02
2018	6,2	6,2	0
2019	5,5	6,4	-16,3
2020	5,5	-	-
Total			-12,89
Forecast			
2021	7,06		
2022	6,11		
2023	6,57		

As a result, we get the following output

ε = -12,89 /9 = -1,43 < 10% .

So, according to the results of the calculation, the accuracy of the forecast is high. Next, we make a prediction using the exponential smoothing method.

Method II. Forecasting the unemployment rate in Kyrgyzstan by the exponential smoothing method. In practice, this method is most effective when developing short-term (for a year) forecasts based on statistical data for the last ten years.

When predicting the unemployment rate in Kyrgyzstan using the exponential smoothing method, it is necessary to:

1. First, we define the smoothing parameter using the following formula

$$\alpha = \frac{2}{n+1}$$

2. After determining the initial value of Uo in two ways:

I. U_o= (8,6+8,6+8,4+8,3+8,0+7,6+7,2+6,9+6,2+5,5+7,5)/11= 7,52

II. U_o= 8,6

3. Our next step is to calculate an exponentially weighted average for each period using the formula

$$U_{t+1} = \alpha * y_t + (1-\alpha)U_t$$

First, we make the calculation according to method I: U_{2011} =7,68; U_{2012}= 7,82; U_{2013}= 7,86; U_{2014}= 7,92; U_{2015}= 7,93; U_{2016}= 7,87; U_{2017}= 7,76; U_{2018}= 7,6; U_{2019}= 7,37; U_{2020}= 7,0. Using the same formula, we calculate the forecast value: U_{2021}= 7,08.

Then we make the calculation according to method II: U_{2011} = 8,59; U_{2012}= 8,58; U_{2013}= 8,5; U_{2014}= 8,46; U_{2015}= 8,38; U_{2016}= 8,21; U_{2017}= 8,0; U_{2018}= 7,82; U_{2019}= 7,46; U_{2020}= 7,14. Then we calculate the forecast value: U_{2021}= 7,19.

The results of the calculations for the two methods are entered in table 4:

Table 4. – Calculation of the average relative error by the method

Years	Unemployment rate, Yt,%	Exponentially weighted average, Ut		Calculation of the average relative error, $\frac{/y_ф - y_р}{y_ф} 100$, %	
		I method	II method	I method	II method
2010	8,6	7,52	8,6	12,5	0
2011	8,6	7,68	8,59	10,6	0,11
2012	8,4	7,82	8,58	6,9	-2,14
2013	8,3	7,86	8,5	5,3	-2,4
2014	8,0	7,92	8,46	1	-5,75
2015	7,6	7,93	8,38	-4,34	-10,26
2016	7,2	7,87	8,21	-9,3	-14,0
2017	6,9	7,76	8,0	-12,4	-15,9
2018	6,2	7,6	7,82	-22,5	-26,12
2019	5,5	7,37	7,46	-34	-35,6
2020	7,5	7,0	7,14	6,6	4,8
Total	-	-	-	-39,69	-107,26
Forecast 2021	-	7,08	7,19	-	-

Based on the results of calculating the average relative error, we determine:

$$\varepsilon = \frac{1}{n}\sum_{i=1}^{n} y_ф - y_р \frac{\square}{y_ф} * 100$$; по способу I: ε = -3,60; по способу II: ε = - 9,75

In all variants, the accuracy of the forecast is appropriate, since the value of the average relative error is less than the standard, i.e. less than 10 %.

Method III. Forecasting the unemployment rate in Kyrgyzstan using the least squares method. According to the theory, the essence of the least squares method is to minimize the sum of the square deviations between the observed and calculated values. Theoretically, the calculated values are found according to the selected equation, i.e. the regression equation. At the same time, the smaller the difference between the actual values and the calculated ones, the more accurate the forecast calculated on the basis of the regression equation is obtained. To make a calculation based on certain data on the unemployment rate in Kyrgyzstan from 2010 to 2020, we will define the time symbol as a sequential numbering of the forecast base periods. In this case, the calculated values of the Ur series are determined by the formula:

y_{t+1}= a*x+b,

$$b = \frac{\Sigma_{i=1}^{n} y_Ф}{n} - \frac{a * \Sigma_{i=1}^{n} X}{n}$$:

a = -0,25; b = 9,02

The results of the unemployment rate in Kyrgyzstan are presented in the following table.

Table 5. – Calculation of the average relative error by the method LS, %

Years	Unemployment rate, уф%	Time symbol, X	Уф*X	X^2	Ур=a*1+b	Calculation of the average relative error, $\frac{/y_ф - y_р}{y_ф} 100$, %
in fact 2010	8,6	1	8,6	1	8,77	-1,97
in fact 2011	8,6	2	17,2	4	8,52	0,9
in fact 2012	8,4	3	25,2	9	8,27	1,54
in fact 2013	8,3	4	33,2	16	8,02	3,3
in fact 2014	8,0	5	40	25	7,77	3,5
in fact 2015	7,6	6	45,6	36	7,52	1,0
in fact 2016	7,2	7	50,4	49	7,27	-0,97
in fact 2017	6,9	8	55,2	64	7,02	-1,73
in fact 2018	6,2	9	55,8	81	6,77	-9,19
in fact 2019	5,5	10	55	100	6,52	-18,5
in fact 2020	7,5	11	82,5	121	6,27	16,4
Total	82,8	66	468,7	506	-	-5,72
Forecast 2021	6,02	12				
Forecast 2022	5,77	13				
Forecast 2023	5,52	14				

Then we determine the forecast value: $У_{2021}$= 6,02; $У_{2022}$= 5,77; $У_{2023}$= 5,52

Next, we calculate the average relative error using the following formula:

$$\varepsilon = \frac{1}{n} * \sum_{i=1}^{n} \frac{\overline{y_ф - y_р}}{y_ф} 100,$$

ε= -5,72/ 11 = -0,52 % < 10%.

As a result, the accuracy is high.

As a result, the analysis showed that in order to eliminate the qualitative imbalance between the demand and supply of labor, it became necessary to take the following measures: monitoring the labor market situation, the professional composition of the unemployed and the structure of vacant jobs, which allows us to determine the main areas in which training and retraining of specialists should be carried out; the participation of employers in training; the state order for specialists of certain categories.

REFERENCES

1. Bulatov A. S. Ekonomika. – M., 2001. – 894 p.
2. Kyrgyzstan in numbers. NSK KR – B., 2020. – 334 p.
3. Novikova N. V., Pozdeyeva O. G. Forecasting of the national economy. – Yekaterinburg, 2007. – 138 p.
4. Serova E., Alternative employment in rural areas of Russia. - M., 2006. – 72 p.

UDC 338.49+332.021.8

CHINESE GOVERNMENT'S ENVIRONMENTAL MANAGEMENT IN SPONGE CITY CONSTRUCTION UNDER THE DIGITAL BACKGROUND: PROBLEMS AND COUNTERMEASURES

DENG YUE, N. YEVCHENKO
Southern Federal University, Russia

With the rapid development of urbanization, continuous high-intensity development has made the urban ecological environment overwhelmed. In order to solve this problem, after fully studying the relevant knowledge of foreign sponge cities, China has carried out relevant pilot work according to the current situation of the city taking into consideration local conditions. In the context of digital-driven government management, the construction of sponge cities requires more comprehensive and accurate urban planning, so as to complete the cooperation of various stakeholders at different levels. The article mainly discusses the potential problems and countermeasures faced by the construction of sponge cities, provides decision-making support and theoretical suggestions for the construction of future smart ecological environment cities, inspired by environmental governance research.

1. Reasons and Present Situation of Sponge City Construction in China

1.1. Reasons for Sponge City Construction in China

In the past 30 years, China's urbanization has played a vital role in promoting economic and social modernization. However, due to the extensive urban development model, "urban diseases" are very prominent, resulting in a series of serious resource and environmental problems. It is mainly manifested in three aspects. First, the pattern and micro-topography of rivers and lakes have changed in the process of urbanization, the regulation and storage capacity of rivers and lakes has decreased, and urban floods have occurred frequently. Second, the discharge load of urban pollutants has exceeded the carrying capacity of rivers and lakes, resulting in the deterioration of the water environment and water ecology, and aggravating the shortage of water resources. Third, the pressure in water supply and demand has become increasingly obvious, and the shortage of urban water resources is widespread. More than 400 cities in China are short of water [1, p.793]. These three aspects of urban water problems are intertwined, which have become prominent problems affecting urban public safety and human settlement environment, and seriously restrict the sustainable development of Chinese cities.

At present, China's urban construction is basically extensive, and rivers, lakes, and green spaces around the city are buried to build houses, or roads and parking lots are built on the hardened ground, so the original natural ecological environment and water system of the city cannot be protected. After the urban ground hardening construction, the water that can seep into the ground when it rains, especially when it rains heavily, gathers on the ground to form surface runoff, resulting in urban waterlogging. Rainwater can't be used effectively, which leads to the problem of "water logging in every heavy rain and overflowing with every small rain" in many cities across the country. Urban construction pays no attention to the protection of natural water ecology, the utilization of natural water resources, the treatment of water pollution, and the guarantee of water safety. Urban construction pays less attention to underground drainage and water absorption system and attaches importance to hardening and lighting facilities on the ground. The urban drainage system has a single goal, low standard, lack of systematic consideration, and lack of response to natural disasters. Urban waterlogging, water pollution, and other issues cross, which are common problems with current urban construction, reflecting the importance and urgency of sponge city construction.

1.2 The current situation of Chinese government building sponge city

To solve these problems, the Chinese government has carried out relevant pilot work according to the current situation of cities and local conditions. In the context of digital-driven government governance, the construction of sponge city needs more comprehensive and accurate urban planning, so as to complete the cooperation of various stakeholders at different levels.

In November 2014, the Ministry of Housing and Urban-Rural Development issued «the Guide to Sponge City Construction - Low Impact Development System» [5]. In January 2015, the Ministry of Finance, the Ministry of Water Resources and the Ministry of Housing and Urban-Rural Development jointly organized the construction of 16 pilot cities. In October 2015, the Office of the State Council issued «the Guiding Opinions on Promoting the Construction of Sponge City» [4], which clearly pointed out the objectives of sponge city construction. After 2015, 30 cities in China have carried out sponge city pilot work, so as to explore the way to promote sponge city and accumulate construction experience. At the same time, based on the construction of national pilot cities, many provinces also put forward the appeal of building provincial pilot cities of sponge cities, which vigorously promoted the promotion and application of the concept of sponge city in construction projects around the country. In the process of sponge

city planning, practice, evaluation, and operation, its construction concept, technical reform, and evaluation standard are also constantly changing with the development of The Times. The newly released White Paper on the Construction of Sponge Cities in China 2018 puts forward the idea of accelerating the construction of "Sponge Cities in China", and points out the road to building intelligent sponge cities digitally in the future.

2. The basic connotation of sponge city

Sponge city refers to a city that, like a sponge, has good "elasticity" in adapting to environmental changes and cop with natural disasters. When it rains, it absorbs, stores, seepages and purifies water, and "releases" the stored water and makes use of it when needed [2, p.82].

To build a sponge city is to make the city retain rainwater to the greatest extent, and set up a number of plots as sponges in various areas of the city. These sponges are usually leisure parks for citizens, and they become water storage places when there is heavy rain. Mud, grassland, forest, small rivers, lakes, sewers, reservoirs, etc. can absorb a lot of rainwater. In this way, the rainwater can be digested locally, so as to prevent the rainwater from pooling together to form a flood of a rainstorm. When a large amount of rainwater is absorbed by the sponge, there is no accumulated water and no water logging in the city. The rainwater fully absorbed by sponge can be widely used again, such as watering flowers and plants, washing cars, flushing toilets, etc, which can alleviate the shortage of water resources to a certain extent.

Sponge city requires the protection and utilization of natural rivers and lakes, the reduction of reinforced concrete drainage pipes and reinforced concrete reservoirs as much as possible, the combination of drainage facilities with existing urban green spaces, gardens, and landscape water bodies, and the solution to the problem of water pollution caused by sewage overflow from urban sewage drains and toilets after a rainstorm. From an economic point of view, the construction of a sponge city, firstly, reduces the cost of urban construction, secondly, reduces a series of economic losses caused by water logging, and thirdly, exerts the ecological benefits of the city. The schematic diagram of a sponge city is shown in Fig. 1.

Fig. 1. – The schematic diagram of sponge city [2, p.92]

The construction of an intelligent sponge city requires that in the context of digital-driven governance, the concept of government governance should be innovated and a new concept of digital governance should be added. At the same time, intelligent city governance is carried out. Through the use of intelligent big data information analysis and other information technologies, a business monitoring cloud platform is built to improve the intelligent perception level of urban rainwater resource status, promote data sharing and social participation, and realize the intelligent construction, operation, and maintenance supervision of sponge city. This will provide new ideas about solving the problems that hinder the process of present, and is also the only way for the construction of sponge cities in the future [3, p.89].

3. Problems with the construction of sponge city by the Chinese government

3.1. Segmentation of management system, the government actively promotes the construction of information platform, and realizes the sharing of complete information and data by various subjects, thus completing the optimal allocation of resources. The government plays a leading role in the information sharing platform, manages the relationship to all subjects in an overall way, coordinates the rights and interests of all parties, and provides firm policy supported for the digital management of Sponge City.

3.2. The concept of understanding is not in place, planning and construction time and space fragmentation. First, the application and service are low. Sponge city construction is an ecologically sustainable project. In sponge city construction, some cities pay too much attention to the early infrastructure construction but neglect the maintenance and supervision in the operation process, and the actual efficiency is far from satisfying. Secondly, the construction mode is fragmented, and extensive urban water conservancy construction still exists. For example, the work in some cities is not in place, which is only a shallow analysis of policies and simply imitates the paradigms of other pilot cities.

3.3. The concept of sponge city has not been popularized, and the social participation rate is low. Because of the lack of knowledge reserve for reusing rainwater, people did not support the construction of sponge city where their hometown is located. There are a distance and barriers between government policies and the masses, which leads to the government's work not being supported by the masses.

3.4. The construction concept is backward, and the trend of intelligent digital governance has not been followed up in time. The concept of sponge city was put forward before the big data development strategy. Sponge city projects in many cities still stay in the traditional fragmented and mechanical construction mode, and the operation and maintenance supervision of construction facilities and the effective solution of water problems such as urban water logging was not discussed.

4. Suggestions of the Chinese government to build sponge city from the perspective of digital governance

The construction of an intelligent sponge city requires that the concept of government governance should be innovated and the new concept of digital governance should be added in the context of digital-driven government governance. At the same time, intelligent urban governance will be carried out, and a business monitoring cloud platform will be built through the use of intelligent big data information analysis and other information technologies to improve the intelligent perception level of urban rainwater resources, promote data sharing and social participation, and realize the intelligent construction and operation and maintenance supervision of sponge cities. This will provide new ideas about solving the problems that hinder the process of the present, and it is also the only way to build a sponge city in the future.

4.1. Build an intelligent government decision-making system

First, constructing a data collection scheme based on the regional geographical knowledge which accords with the regional characteristics and advantages and disadvantages, and constructing an efficient and real-time operation system, so as to provide a solid data foundation for the sponge city construction under the guidance of digital governance background.

Secondly, exploring the new development of environmental data in the era of big data. On the basis of existing data, promote the central role of the government in the process of sponge city construction by improving information processing technology, establishing a new concept of data information analysis, and broadening the sources of information data, and promote the intelligent decision-making of government decision-making system and the integration of comprehensive and accurate analysis data.

4.2. Multi-subject governance of the micro-level

1) At the government level, the government should constantly improve the level of administrative intelligence, so as to change into the digital governance model; actively promote the construction of information platforms, realize the sharing of complete information and data by various subjects, and complete the optimal allocation of resources; take the leading position in the information-sharing platform, manage the relationship to all subjects as a whole, coordinate the rights and interests of all parties, and provide solid policy supported for the digital management of Sponge City.

2) At the enterprise level, it is necessary to give full play to the strengths of the enterprise, provide accurate information on the government, and coordinate the cooperation between government and enterprises, so that the information platform led by the government has a more perfect information support system. At the same time, different enterprises should not only have healthy competition but also need to cooperate with each other to complement each other. In the digital platform, it is possible to realize benign interaction between government enterprises and enterprises and jointly promote the harmonious development of sponge city.

3) At the level of social organizations, social organizations should actively participate in the social governance of sponge cities, and provide more social support for the reform of government governance. Actively participate in the construction of information and data sharing channels, and further promote the digital governance of sponge cities.

4) At the citizen level, citizens should take the initiative to participate in the social construction of sponge city, be good at finding and raising problems, and actively report and solve problems. By participating in social organizations and other forms, we can promote more positive social energy and help the further construction and development of sponge cities.

4.3. Application of digital governance model

The relevant data onto regions are managed by the local governments where each region is located, and the non-circulation of information about local governments greatly limits the integrity of sponge city construction. Therefore, relevant departments should increase relevant investment, promote information sharing, and build an information exchange and interactive platform to ensure the right to know of all parties, thereby reducing negotiation costs and improving the efficiency of sponge city construction.

First of all, the construction of a real-time ecological environment monitoring system will help each subject to grasp the environmental data in time and accurately, and provide authoritative information data onto the government to judge the ecological environment situation scientifically and reasonably;

Secondly, in the construction process, it is necessary to ensure the accuracy and effectiveness of the construction and transformation areas, and make timely adjustments or stop operations when the measures are not obvious or inappropriate, so as to avoid useless measures. Finally, attention should be paid to the operation and maintenance after the project is completed, and depreciation facilities should be replaced in time to ensure the construction effect and prevent the ecological environment from being damaged again.

REFERENCES

1. Zhang Jianyun, Wang Yintang.Progress in Water Science,2016(11):973.
2. Wu Danjie, Li Youhua. Research on new trend and practice of sponge city with Chinese characteristics [J]. China soft science, 2016 (1):82-92.
3. Fang Shinan, Dai Renzhang.Problems and countermeasures of sponge city construction [J]. Research on Socialism with Chinese Characteristics, 2017 (1) :89.
4. General Office of the State Council. Guiding Opinions of the General Office of the State Council on Promoting Sponge City Construction (Guo Ban Fa [2015] No. 75). http://www.stats.gov.cn/wzgl/ywsd/201510/t20151017_1257479.html.
5. Ministry of Housing and Urban-Rural Development, PRC. Technical Guide for Sponge City Construction - Construction of Rainwater System for Low-Impact Development (Trial) (Construction Han [2014] No.275). http://www.mohurd.gov.cn/wjfb/201411/t20141102_219465.html.

Economics

UDC 658.8.011.1

THE PLACE AND ROLE OF TRANSPORT IN INCREASING SUPPLY CHAIN MANAGEMENT EFFICIENCY

E. POPLAVSKAYA, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

The article examines the economic essence of the supply chain and reveals its classification features. The characteristics of the supply chain management process are given and the basic principles of interaction between their participants are determined. The leading role of transport in improving the quality of customer service followed by an increase in the efficiency of supply chain management is noted.

The rapid development of the market, tougher competition and the requirement to improve the quality of consumer service pose new challenges to business entities. To meet these challenges, remain competitive and leverage their strengths, today's business organizations need to optimize all value creation processes in the supply chain – from raw material supply to after-sales service to the end customer. To do this, the leadership of many organizations is increasingly turning to supply chain management solutions.

To identify the specifics of supply chain management, you should initially find out what is meant by the term "supply chain" and on what grounds the supply chains are classified.

The supply chain should be understood as three or more separate units (organizations or individuals) directly involved in the incoming and outgoing flows of goods, services, finance and information from the source to the consumer [1, p. 20].

Supply chains are classified according to the following criteria:

1) by the complexity of the structure and the number of partners involved: simple supply chains, complex supply chains, supply chains;

2) according to the development strategy: regular economical supply and quick response to market demands;

3) by the type of cargo: standard, identical and varied; piece, bulk, liquid, gaseous;

4) by the number of names of goods: multi-item and homogeneous (mass), with a small number of items;

5) in terms of traffic volumes: small cargo flows up to 100 thousand tons / year; average freight traffic 100-500 thousand tons / year; large cargo flows of 500-1000 thousand tons / year; massive cargo flows over 1000 thousand tons / year;

6) according to the stability of cargo flows: constant, regular, pulsating, variable;

7) by the size of transport consignments: small shipments, wagon shipments, container shipments, whole vehicles, group shipments, route transportation;

8) by the nature of transportation and the number of modes of transport used: direct, unimodal, mixed, multimodal, intermodal, domestic, international, transit;

9) by the prevailing mode of transport: rail, road, sea;

10) according to the technology and conditions of transportation: in bulk, in shipping containers, in separate piece pieces, in transport packages on pallets, in containers (medium-tonnage, large-tonnage, specialized, isothermal, thermoses, tank containers);

11) in terms of delivery time of goods and forecasting capabilities: long delivery time, short delivery time; easily predictable, difficult to predict [2, p.13].

Supply chain management is the interaction of several isolated units (organizations or individuals) directly involved in the incoming and outgoing flows of goods, services, finance and information from the source to the consumer.

Supply chain management is the most important component of the activities of top managers of many market leaders. As practice shows, 60–80% of personal resources, the volume of costs and a significant part of the success of companies are determined by how good the interaction of counterparties in the supply chains is.

Many businesses, whether in a variety of activities or involved in multiple parallel supply chains, face the challenge of intelligent horizontal integrating across the customer value chain. Horizontal integration of supply chain links is applicable where synergy from linking processes yields better results than isolated activities within functional areas of the business. Business entities that already at the stage of product development and selection of a market for its implementation provide for the subsequent requirements for the daily integration and coordination of their activities in supply chains, therefore, they can achieve better results than those who work without coordinating various levels of management of their activities [3].

The specifics of supply chain management are related to what goods are produced and sold by a business entity, what policy it uses when interacting with distributors and end customers, that is, it can be individual in each case.

To effectively manage supply chains, their participants must interact based on certain principles, namely:

- the segmenting consumers based on the need for services;
- the orientation of the logistics network to the client;
- the tracking market demand and planning based on it;
- the study of consumer demand;
- the strategic planning of supplies;
- the development of a supply chain strategy;
- the use of methods of attracting (capturing) new distribution channels [4].

Consequently, the concept of supply chain management contributes to increasing the competitiveness of business entities in modern conditions. With the help of supply chain management, they get the opportunity to improve technology for creating value at all stages of chain formation.

The supply chain management process itself covers the following stages: planning, procurement, production, delivery and return.

At the planning stage, sources of supply are established, the nuances of consumer requests are investigated, requirements are imposed on the distribution system, operational stocks and volumes are planned, and the amount of supply of resources and goods produced is calculated. In addition, it is determined what will be produced in-house and what needs to be purchased from partners, and it is planned to manage the goods throughout the entire chain.

At the procurement stage, all the nuances of supply management are developed, their quality is analyzed, suppliers with whom contracts are signed are determined.

At the production stage, the following operations are performed:

- the production process itself;
- the management of structural elements (that is, control over technological changes);
- the management of production cycles and capacities (equipment, buildings, etc.), production quality, work shift schedule, etc. There is also quality control, packaging, direct operational actions, storage of goods and semi-finished products. It is important that all of these activities are consistent with planned or current demand.

The delivery stage is associated with the implementation of such operations as:

- the order management (direct creation and registration of orders, determination of the form of products, calculation of its value, registration and maintenance of the customer and product base, interaction with debtors and creditors);
- the warehouse management (selection, assembly, packing and dispatch of goods);
- the transportation of products (in accordance with the rules for managing delivery channels and orders).

The return stage implies the definition of criteria by which unsold products are taken back, the scheduling of return and direction for disposal [5].

Transport plays a critical role in supply chain management, being one of its key components. The productivity of organizations largely depends on the work of transport, due to the fact that the costs of transporting goods occupy a decent share in distribution costs. Correct and rational use of transport is the basis for the efficient delivery of millions of tons of goods around the world from manufacturers to end consumers.

From an economic point of view, transport is one of the defining elements of the production and commercial process. There are two limiting factors in the production and use of a product - the time factor and the spatial factor.

The time factor is that the goods produced today may only be needed after a certain period of time. This problem is solved with the help of warehousing, as well as the necessary equipment, equipment and certain storage technologies.

The content of the spatial factor lies in the fact that producers and consumers of a product are rarely in one place, but at some distance from each other. By linking production and the consumer, transport allows you to expand the boundaries of production. Transport itself is gradually becoming the cause of the emergence of a spatial factor - the development of transport and transport technologies makes it possible to build production further and further from the places of consumption of the goods. In today's economic environment, transport is always profitable.

Operating in a market economy, transport enterprises should be aimed at obtaining a single economic result in the logistics chain.

This is facilitated by many factors, among which the following can be noted:

- the developed market of transport services;
- the competition between enterprises and different types of transport;
- the tightening of requirements for tariffs and quality of services on the part of consumers, etc.

Thanks to efficient transport management, the logistics process of commodity movement (starting from suppliers of raw materials and materials, covering various types of intermediaries, and ending with consumers of finished

products) is transformed into a single technological chain, and transport becomes an integral part of the single transport and production process. In this chain, the main functions of transport are to move goods and store them [6].

Any cargo, whether it be raw materials, materials or finished products, must be delivered to the place of further processing or final consumption. Due to the fact that the movement of goods consumes time, as well as financial and environmental resources, it is necessary that this process is economically justified, that is, it makes a significant contribution to the creation of the value of the goods. In this case time is an extremely important resource, since in the process of transportation products (stocks in transit) are not available for use.

Transportation also requires financial resources - in the form of internal costs for the transport of goods with the company's rolling stock and external costs for the use of commercial or public transport. Transportation costs include driver wages, rolling stock operating costs, and some general and overhead costs. It is also necessary to take into account the costs arising from damage or loss of the transported cargo.

Storing cargo in vehicles is expensive, but in cases where the transported cargo needs to be held somewhere for a short time, and after a few days to be sent further, the costs of unloading and loading at the warehouse can significantly exceed the losses from the idle time of loaded vehicles.

Temporary storage of goods in vehicles can also prove beneficial in cases where storage capacity is limited. Sometimes they choose special extended indirect delivery routes. This increases the travel time, but at the same time solves the problem of congestion in the warehouse at the point of departure or at the point of destination. In this case, the vehicle is used, in fact, as a mobile storage facility.

Transport services for supply chains should be carried out on the principles of logistics, borrowed from their general composition, developed and supplemented in accordance with the specifics of the service, namely on the principles of optimality, reliability and efficiency.

Based on the principle of optimality, transport processes should be carried out under all possible options only according to the most rational scenario, based on the selected criteria, such as the presence or absence of access roads and transport infrastructure, the distance of transportation, the complexity of routes, etc.

Using the principle of reliability, transport processes must ensure compliance with the schedule of departure, movement, transshipment, arrival. The interaction of vehicles should be carried out in such a way as to avoid delays of some and downtime of other modes of transport. The probability of disruption of the movement of the material flow due to the fault of transport should be minimal.

With the principle of efficiency, the work of transport should be carried out in such a way as to fully satisfy the needs for transportation, that is, the movement of cargo in space under conditions of the maximum full load of vehicles in terms of carrying capacity and cargo capacity, increasing the utilization rate of mileage, ensuring loading on the return (or next) flight, reducing total transportation costs [7].

Thus, the perfect form of technological interaction between various types of transport and transport service entities in supply chain management is a single technological process of transportation - a rational system for organizing the work of interacting modes of transport, linking together the technologies for processing transport units at points of interaction, providing a single rhythm in the transportation process.

REFERENCES

1. Sergeyev, V.I. Upravleniye tsepyami postavok: uchebnik dlya bakalavrov i magistrov / V.I. Sergeyev. – M.: Izdatel'stvo Yurayt, 2015. – 479 p.
2. Malikov, O.B. Skladskaya i transportnaya logistika v tsepyakh postavok: uchebnoye posobiye / O.B. Malikov. – SPb.: Piter, 2019. – 400 p.
3. Rol' upravleniya tsepyami postavok v sovremennoy ekonomike [Electronic resource]. – Mode of access: https://studme.org/68480/logistika-/rol_upravleniya_tsepyami_postavok_sovremennoy_ek-onomike. – Date of access: 2021.04.10.
4. Supply chain management (SCM) ili upravleniye tsepochkoy postavok [Electronic resource]. – Mode of access: https://logistics.ru/21/7/1/i8_466.htm. – Date of access: 10.04.2021.04.11.
5. Bazovyye kontseptsii upravleniya tsepyami postavok [Electronic resource]. – Mode of access: https://vangoghlife.ru/bazovye-koncepcii-upravleniya-cepyami-postavok-scm-sistemy-upravleniya.h-tml. – Date of access: 2021.04.11.
6. Znacheniye transporta v tsepi postavok [Electronic resource]. – Mode of access: http://journalpro.ru/articles/znachenie-transporta-v-tsepi-postavok/. – Date of access: 2021.04.11.
7. Rol' transporta v logisticheskoy tsepi predpriyatiya [Electronic resource]. – Mode of access: https://ponp.ru/kalkulyator-banka/rol-transporta-v-logisticheskoi-cepi-predpriyatiya-rol-transportnyh-operacii-v.html. – Date of access: 2021.04.11.

UDK 004.8, 656:338, 65.011.56

DIRECTIONS OF DEVELOPMENT OF DIGITALIZATION IN LOGISTICS

V. KULIK, O. MESHCHERYAKOVA
Polotsk State University, Belarus

The research is devoted to the study of directions for the development of digitalization in logistics in the Republic of Belarus. The world technologies of digital logistics are considered and the latest trends in this area are presented. The results of the introduction of innovative technologies into logistics activities are analyzed, a conclusion is made about the positive and negative consequences of this implementation. Conditions for the further development of digital logistics in Belarus are outlined.

Manifestations of digital transformations in Belarus cover all aspects of society's existence: economic, social, political. Conditions for the development of entire areas of the economy are changing, new business models are being created; the smart home system and e-government are applied.

The relevance of digitalization for Belarus lies in the use of new opportunities to change the life of mankind for the better. The transformation of social structures leads to the development of new social norms and behavioral models, there is a virtualization of the life of society, a person, a transition from the introduction of individual technologies to the integrated construction of digital ecosystems. The introduction of electronic technologies will lead to an increase in the provision of quality services and goods. The shift to e-commerce will drive potential business growth and expansion. The implementation of digital platforms, following the example of the best world practices, will lead to the economic growth, transformation of public administration, GDP growth, an increase in the country's investment attractiveness, and an increase in employment of the population in the field of IT technologies.

The development of transparent and operational mechanisms for the work of public services, the possibility of increasing the export, transit and freight attractiveness of Belarus is seen as relevant. The creation of a single information space using digital technologies will open up new opportunities for managing logistics business processes. Digital technologies create advantages over competitors in the management of transport and logistics processes by integrating different target groups of shippers and consignees for all types of transport.

An important condition for the development of digitalization is the use of the end-to-end digital technologies based on the Internet of Things, radio frequency tags (RFID) and the implementation of robotization of warehouse and transport business processes.

The Concept for the Development of the Logistics System of the Republic of Belarus until 2030 provides for the phased development of the logistics infrastructure, acceleration of goods movement and reduction of total costs in the supply chain, the integration of Belarusian enterprises into international logistics chains.

The National Sustainable Development Strategy 2030 on the China-Europe railway route provides for an increase in freight turnover by 1.2 times and passenger turnover by 1.4 times due to delivery, the average transit time of the route is 12-17 days instead of 35-40 days for sea shipment.

The presence of a large number of tasks in the logistics process implies the presence of artificial intelligence in the field of IT technologies. The distribution of the use of artificial intelligence in the leading areas of the economy is shown in Figure 1.

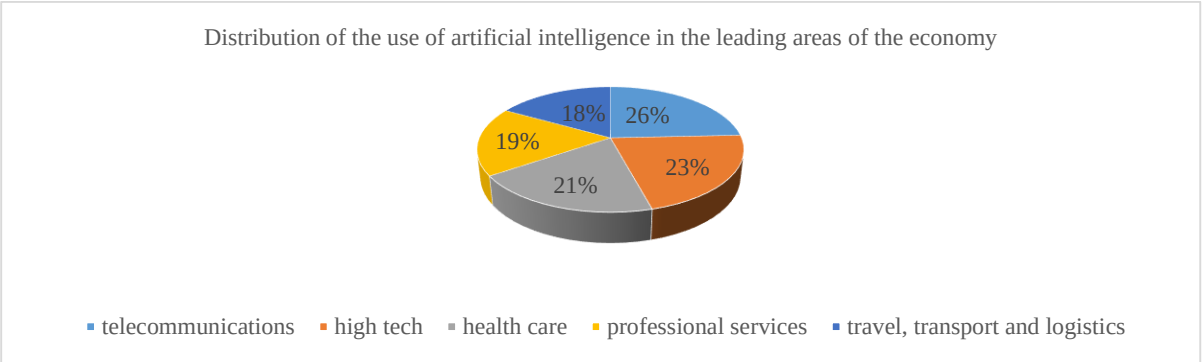


Figure 1. – Distribution of the use of artificial intelligence in the leading areas of the economy

Note: compiled by the author

Only 18% is using artificial intelligence in supply chains in transport and logistics at the beginning of 2020. However, this lowers conversion costs by up to 20% and increases labor productivity by up to 70%. Reducing costs and increasing sales will occur due to the delivery of products in a shorter time frame [1].

The introduction of digitalization in international cargo transportation will allow the use of sensors and sensors to track the quality and speed of cargo movement; apply routing, navigation, automatization on vehicles, as well as change the inventory management system, introduce electronic data exchange, blockchain.

G.G. Golovenchik in the monograph "Digitalization of the Belarusian economy in modern conditions of globalization" states: "The share of digital transactions in the total number of acquisitions in the transport and logistics services sector increased from 3.9% in 2010 to 14.8% in 2018" [2].

In the next 5 years in the field of logistics, there will be an increase in the scale of digitalization. Until recently, transportation innovation has been associated with cargo tracking. However, with the emergence of new companies and logistics firms collaborating with tech startups, the development of logistics has accelerated dozens of times.

Consortium of Modern Trade Technologies LLC (a certified EDI operator in Belarus, a member of the European EDI-EEDIN network), TRANSINET GmbH (a European provider of transport and logistics services) and TRANSRAIL BC (the largest rail freight forwarder in Belarus) the concept of creating a unified Digital European-Eurasian Transport and Logistics Platform (DTLP) was developed. It is aimed at combining information resources of participants in international multimodal freight transport with the aim of reengineering and digitizing business processes, optimizing the use of transport infrastructure and providing a package of information, analytical and management services to all operators of supply chains. The concept is based on the principles of building a regional network of national eLogistics platforms that can form a "data conveyor" along the EU-EAEU transport routes and acts as a "corridor" of a service solution (CaaS) for multimodal transportation of goods by sea, rail, road and air.

From August 2024, operators of road, rail, sea and air transport of the EU member states will provide electronic information on freight traffic (eFTI) according to uniform technical standards, which are planned to be developed over the next two years. This will increase the efficiency of deliveries by all modes of transport in the single market of the European Union, reduce the costs of participants in supply chains, simplify law enforcement, eliminate language barriers, and reduce waiting times during inspections [3].

Let's list the technologies of global digital logistics that make supply chains more customer-centric:

1.e-AWB. It is an electronic air waybill that improves the efficiency of tracking and processing cargo data, ensures transparency and safety of cargo in transit, and reduces costs and delays in the transportation of goods;

2. Big Data simplified demand forecasting, optimized routes, allowed risk management and predictive analytics in logistics;

3. Cloud logistics. Data is transferred to the cloud, logistics services are made available as a pay-on-demand basis. Shipwire and Freightly provide cloud-based real-time transport management systems. They cover all logistics processes from procurement to invoicing, making the whole process easier and cheaper for companies. Cloud logistics is rapidly gaining popularity: 50% of logistics service providers are already using cloud services, 20% are planning to do so;

4. Blockchain. Tracking schemes will ensure complete transparency and traceability of products along the entire route of the goods. Blockchain enables automatic billing and payment of invoices, with the payment being processed as soon as the goods arrive at their destination;

5. Digital twin. This is a software analogue of a physical device that simulates internal processes, technical characteristics and behavior of a real object under conditions of interference and the environment, identifying anomalies and the causes of their occurrence. The main purpose of using digital twins is to accurately predict, prevent problems before they arise, and plan effectively for the future. Digital twins enable logistics providers and other companies in the supply chain to provide partners with increased transparency and increase consumer demand. Digital twins can have a significant impact on the design, operation and optimization of logistics infrastructure: warehouses, distribution centers and transfer facilities. Warehouses and distribution centers make up a small part of the entire logistics infrastructure. The flow of goods to their destination depends on the organization of many elements of the supply chain, including ships, trucks and airplanes, ordering and information systems, and people. This complex multi-stakeholder system is most clearly visible in the world's major logistics hubs such as airports and container ports. In logistics, the digital twin can be a model of the entire network: logistics assets, oceans, railways, highways, streets, homes, and customer workplaces. The idea of a digital twin is now largely an aspiration for logistics activities;

6. "Mobile carriers". Cargo owners and passengers need a full range of services with access from their mobile device. The client gets the opportunity to order transportation on a digital logistics platform by pressing a button in the mobile application. This allows you to simplify and reduce the time and money spent on ordering.

We will also characterize other newest areas of digital logistics. Their use will allow solving problems with the end users of products and the throughput of goods circulation in supply chains.

3D printing (additive manufacturing) is a manufacturing process in which a 3D printer creates three-dimensional objects by applying material in layers, in accordance with the digital 3D model of the object. 3D printing can be used in different areas of the economy. The technology is available on a mass scale, helping to reduce costs when manufacturing mixed materials products.

The Internet of Things (IoT) is the connection of physical objects to the World Wide Web and the ability to receive valuable data from a wide variety of devices. The introduction of IoT technologies in the field of logistics makes it possible to optimize the entire logistics system, including warehouse operations, transportation and delivery. IoT provides an opportunity to improve process efficiency, security and quality of service. Tracks individual consignments and their status using radio frequency identification (RFID) chips via cloud-based GPS systems.

The use of drones for commercial delivery of goods also has a positive result, thanks to the fast delivery of small goods, high speed and accuracy of delivery. The use of unmanned vehicles will reduce the overall shipping costs by 25-40%. At the same time, fuel costs will be reduced by at least 10%, and delivery time – by 30-40%. The labor cost will eventually be reduced by 90%. However, the delivery of goods by drones also has a negative side, as a result of the automation of technological processes in industry and logistics, up to 70% of jobs can be reduced.

Self-driving cars can change the world globally. Rapid adaptation in the environment, orientation without human intervention and a rigid software algorithm will help reduce the number of accidents. According to AT Kearney, autonomous vehicles reduce the likelihood of accidents by 70%.

Augmented reality (AR) is a tool that is actively used in modern realities, which has a number of significant advantages. The ability to provide a direct or indirect view of the real world through additional elements of the perception of reality by a computer, an expanded view of the world in real time opens up new possibilities that were previously not available.

Consider the results of the implementation of innovative technologies in logistics activities in Table 1.

Table 1. – Results of the introduction of innovative technologies in logistics and supply chain management

Technology	Result after technology implementation	Final result +/-
3D printing	Additive manufacturing expands the manufacturing process. Shorten the supply chain by "printing" products to order and reducing finished product inventories. Supply of raw materials by logistics companies instead of finished products. 3D printing at delivery locations.	Additional profit.
Internet of Things (IoT)	High potential for use. No losses during transportation and storage of goods. Prompt prevention of damage or theft of cargo. Climate control in storage areas. Identification of traffic parameters.	Benefit. Customer satisfaction. Additional profit.
Delivery of goods by drones	Use by 3PL operators. Shortening the supply chain. Reduced transportation costs.	Disadvantages: lack of rules and regulations related to government regulation, air traffic safety. Drone dimensions and weights. Job cuts.
Unmanned vehicles	Reduced waiting time for loading and unloading. Reducing the risk of accidents.	Reducing the cost of transporting goods and passengers. Reduction of overhead costs.
Augmented reality, (AR)	Detailed acquaintance with the external environment of the logistics operator (obtaining detailed information about the cargo).	Improved cargo handling. Increase in the speed of cargo delivery. Reduced overall costs.

Note: compiled by the author

Thus, the development of digital logistics in Belarus is possible subject to certain conditions:

1. At the country level, macroeconomic conditions should be taken into account:

a) the location of the state in the international and interstate division of labor (EAEU, EU);

b) the level of specialization and cooperation of companies in foreign and domestic markets;

2. At the enterprise level:

a) introduction of digital marking of products, IoT sensors;

b) the complex application of end-to-end digital technologies that allow you to create an information (digital) "twin" of an enterprise or business process using BIM tools.

This is how traditional supply chain management (SCM) technology is transformed into digital and seamless SCM, i.e. business process management will be carried out automatically in real time based on digital signals [4].

Digitalization in Belarus provides new opportunities in the use of logistics services, which have a positive effect on reducing the costs of selling and storing products. Will facilitate the ability to trace goods and expand insurance services, as well as optimize routes and take-over. The introduction of innovative technologies will have a positive effect on the Belarusian society, on the development of the country's economy.

Digitalization should be considered as a trend of effective global development, since digital transformation should cover production, business, science, the social sphere and the life of citizens. Digitalization of logistics leads to the transformation of existing business models, pricing systems, management style of an organization, attitude to corporate culture, etc. There are various scenarios for the development of the logistics sector based on the introduction of elements of the digital economy, associated both with the emergence of new participants on the market who are ready to introduce modern technologies in all areas of activity, and based on the provision that organizations already on the market will follow the path of digital transformation.

REFERENCES

1. Мельянцев М.В., Симак А. В. Использование искусственного интеллекта в международных логистических системах: материалы / БНТУ. Минск: ред.: Д. В. Капский, Р. Б. Ивуть. 2020. 372 с.
2. Головенчик.Г.Г. Цифровизация белорусской экономики в современных условиях глобализации: монография / БГУ. Минск: Изд. центр БГУ. 2019. 257 с.
3. Тумель С. Единая цифровая европейско-евразийская транспортно-логистическая // Журнал «Транспорт & Транзит». [Электронный ресурс]. – 2020. – Режим доступа: https://transport-tranzit.by/edinaya-tsifrovaya-evropejsko-evrazijskaya-transportno-logisticheskaya-platforma/. – Дата доступа: 09.04.2021.
4. Паньшин, Б.Н., Абдулхасан Абдулазис Интеграция как опора цифровой логистики // Вестнік сувязі. 2019. №2 (154). С. 30-34.

UDC 631.1:338.1

IMPACTS OF AGRICULTURAL INDUSTRIAL STRUCTURE ADJUSTMENT ON AGRICULTURAL ECONOMIC GROWTH – TAKING CHINA AS AN EXAMPLE

LI YIRU, A. MURZIN
Southern Federal University, Rostov, Russia

This paper selects the relevant data of China's agricultural industry from 2009 to 2019, makes an empirical analysis from three aspects of grey correlation analysis, contribution rate and main industry elasticity, and draws relevant conclusions.

In 2015 central committee of the communist party of China put forward "in promoting agricultural structure adjustment". The same year the central rural work conference put forward "agricultural supply side structural reform" for the first time. The central rural work conference required "in-depth implementation of major agricultural products security strategy up to 2020, deepen reform of agricultural supply side structural". It reflected the attention that the country adjusted to agricultural structure and continuous attention.

1. Analysis of present situation of agricultural industrial structure in China

China is located in the east of Asia and on the west coast of the Pacific Ocean, with a land area of 9.6 million square kilometers and an inland and border waters area of 4.7 million square kilometers. It is the world's third largest country in land area with the world's largest population. The terrain is mainly mountainous, plateaus and basins. By the end of 2019, China's urbanization rate had reached 60.60%, the agricultural population was 551.62 million, and the agricultural output value reached 7356.71billion yuan, accounting for 7.4% of the country's GDP and an increase of 9.15% over the previous year. Among them, farming, forestry, animal husbandry, fishery and auxiliary industry (farming, forestry, animal husbandry and fishery professional and auxiliary activities) increased by 7.51%, 6.32%, 15.22%, 3.63% and 10.63% respectively, driving the development of agricultural economy [1]. According to the analysis of the proportion of the output value of each agricultural industry in the total agricultural output value from 2009 to 2019 (see Table 1), the internal structure of agriculture has changed to some extent. Farming and animal husbandry always occupied the dominant position. Farming presented a fluctuating trend of slow rise, while animal husbandry presented a relatively obvious trend of decline. Although forestry and fishery accounted for a relatively small proportion, they both showed a slow rising trend.

In recent years, China has increased investment in the quantity, variety and quality of agricultural crops to promote the high-quality development of agriculture. However, due to natural disasters, animal epidemic and other problems, the development of animal husbandry industry has declined. At the same time, in order to adjust the industrial structure, China has introduced a series of policies to promote the development of forestry and fishery, and the change of consumer demand also made the proportion of the output value of forestry and fishery appear slight increase. From the perspective of overall industrial structure adjustment, China's agricultural industrial structure has been optimized to a certain extent.

Table 1. – Agricultural industrial structure and its changes (%)

Department	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Farming	50.55	52.99	51.17	51.94	52.53	53.01	53.20	52.27	53.10	54.11	53.29
Forestry	3.92	3.80	3.92	3.95	4.13	4.28	4.28	4.35	4.56	4.78	4.66
Animal husbandry	32.35	30.20	31.96	30.68	29.59	28.59	28.12	28.61	26.86	25.27	26.67
Fishery	9.30	9.24	9.31	9.73	9.93	10.10	10.15	10.23	10.59	10.68	10.14
Auxiliary industry	3.88	3.77	3.64	3.70	3.82	4.03	4.26	4.53	4.90	5.16	5.23

(The data are collected from the relevant data in China Statistical Yearbook 2020)

2. Analysis on the relationship between agricultural industrial structure and agricultural economic growth

2.1 Grey correlation analysis of agricultural industrial structure and agricultural economic growth

Grey correlation theory [2] is adopted to compare the influence of the changes of various factors in China's agricultural industrial structure on the structure and rank it according to the size. The calculation process is as follows:

(1) Dimensionless treatment. Taking the gross agricultural product of China as the reference sequence and the output value of each agricultural sector (farming, forestry, animal husbandry, fishery and auxiliary industry)

as the comparison sequence, we set X as a grey related subset, $X_0 \in X$ as the reference sequence and $X_i \in X$ as the comparison sequence. $X_0(k)$and $X_i(k)$are the numbers of the k point of X_0 and X_i respectively, where k= 1,2,3...m; i =1,2,3,4,5. The mean value method is used for dimensionless processing, and the formula(1) is:

$$X_i(k) = \frac{X_i(k)}{\overline{X_i}} \quad (1)$$

Among the formula(1), $\overline{X_i}$ is given by the formula(2)(n is the sequence length, that is, the number of data):

$$\overline{X_i} = \frac{1}{n}\sum_{k=1}^{n} X_i(k) \quad (2)$$

(2) Calculates the absolute value of the sequence difference between the corresponding element of the comparison sequence and the reference sequence $\Delta_i(k)$.The formula(3) is:

$$\Delta_i(k) = |X_0(k) - X_i(k)| \quad (3)$$

(3) Calculate the correlation coefficient ε_i. Find the maximum max$|X_0(k) - X_i(k)|$ and minimum min$|X_0(k) - X_i(k)|$ from the sequence difference $\Delta_i(k)$.Find the maximum maxmax$|X_0(k) - X_i(k)|$ and minimum minmin$|X_0(k) - X_i(k)|$ from the maximum and minimum values of different comparison sequences. Then the correlation coefficient ε_i is calculated according to the formula(4):

$$\varepsilon_i = \frac{minmin|X_0(k)-X_i(k)| + \rho maxmx|X_0(k)-X_i(k)|}{|X_0(k)-X_i(k)| + \rho maxmx|X_0(k)-X_i(k)|} \quad (4)$$

(Among the formula, ρ is the resolution coefficient, ρ∈ (0,1), but usually ρ is 0.5)

The calculation results are shown in Table 2.

Table 2. – Correlation coefficient of total agricultural output value and output value of each department

Year	ε_1	ε_2	ε_3	ε_4	ε_5
2009	0.8369	0.7042	0.6155	0.7413	0.6563
2010	0.9711	0.6130	0.7676	0.7000	0.5741
2011	0.8440	0.6438	0.5734	0.6858	0.4889
2012	0.9086	0.6378	0.6647	0.8292	0.4861
2013	0.9762	0.7738	0.7948	0.9320	0.5154
2014	0.9569	0.9765	0.9940	0.9501	0.6236
2015	0.9285	0.9650	0.8764	0.9129	0.8399
2016	0.9348	0.8974	1.0000	0.8541	0.7461
2017	0.9372	0.6531	0.6493	0.6707	0.4809
2018	0.8041	0.4909	0.4831	0.6273	0.3726
2019	0.8994	0.5425	0.5964	0.9003	0.3334

(4) Calculate the correlation degree γ_i. The formula (5) is:

$$\gamma_i = \frac{1}{n}\sum_{k=1}^{n} \varepsilon_i(k) \quad (5)$$

Among the formula (5), n is the sequence length, namely the number of data; γ_i (1,2,3,4,5) is used to represent the grey correlation degree between the output value of farming, forestry, animal husbandry, fishery and auxiliary industry and the total agricultural output value in China.

The calculation results are shown in Table 3.

Table 3. – Correlation degree between output value of each departments and total agricultural output value

Period	γ_1	sorting	γ_2	sorting	γ_3	sorting	γ_4	sorting	γ_5	sorting
2009-2019	0.9089	1	0.7180	4	0.7287	3	0.8003	2	0.5561	5
2010-2019	0.9161	1	0.7194	4	0.7400	3	0.8062	2	0.5461	5
2011-2019	0.9100	1	0.7312	4	0.7369	3	0.8180	2	0.5430	5
2012-2019	0.9182	1	0.7421	4	0.7573	3	0.8346	2	0.5498	5
2013-2019	0.9196	1	0.7570	4	0.7706	3	0.8353	2	0.5588	5
2014-2019	0.9102	1	0.7542	4	0.7665	3	0.8192	2	0.5661	5
2015-2019	0.9008	1	0.7098	4	0.7210	3	0.7931	2	0.5546	5
2016-2019	0.8939	1	0.6460	4	0.6822	3	0.7631	2	0.4833	5
2017-2019	0.8803	1	0.5622	4	0.5763	3	0.7328	2	0.3956	5
2018-2019	0.8518	1	0.5167	4	0.5398	3	0.7638	2	0.3530	5

Through the changes of the correlation degree of different cycles, the correlation degree of the output value of each agricultural sector and the total agricultural output value showed a trend of first rise and then decline. Among them, the correlation of forestry and animal husbandry decreased obviously, while the correlation of agriculture and fishery decreased slightly. The correlation between forestry, animal husbandry and agriculture should be controlled to ensure the stable development of agricultural economy. According to the results of grey correlation dynamic analysis, from 2009 to 2019, the correlation degree of each industry and agriculture in China is $\gamma_1 > \gamma_4 > \gamma_3 > \gamma_2 > \gamma_5$,that is, $\gamma_{farming} > \gamma_{fishery} > \gamma_{animal\ husbandry} > \gamma_{forestry} > \gamma_{auxiliary\ industry}$. It can be seen that farming has the highest correlation degree to China's agricultural output value and plays the biggest role in promoting agricultural economic growth. In 2019, the output value of fishery accounted for 10.14% of the total agricultural output value in China, which was lower than that of animal husbandry (26.67%). However, the correlation degree of the output value of fishery to the total agricultural output value in China was second only to that of farming. The correlation degree of the output value of forestry and animal husbandry to the total agricultural output value was relatively lower, and the correlation degree of the two was relatively close. It shows that the fishery sector has a great development potential and can promote the development of agricultural economy quickly. Therefore, we should consider strengthening financial and human input. Based on the above statement, it shows that the agricultural industrial structure in China is dominated by farming, and fishery has a great development potential.

2.2 Analysis on the Contribution Rate of Agricultural Industrial Structure to Agricultural Economic Growth

In order to quantitatively analyze the impact of agricultural industrial structure and its changes on agricultural economic growth, the contribution of output value ratio changes to economic growth is adopted to measure [3]. The formula (6) is:

$$M = \sum_{i=1}^{5} C_i M_i \quad (i = 1,\ 2,\ 3,\ 4,\ 5) \tag{6}$$

Among the formula (6), M is the growth rate of agricultural output value, C_i is the proportion of i industrial output value in agricultural output value (data is shown in Table 1), and M_i is the growth rate of i industrial output value. The contribution rate of the change of agricultural industrial structure to the growth rate of agricultural economy is the difference between the actual growth rate of agricultural gross output value and the growth rate M calculated by the model (the calculation result is shown in Table 4).

Table 4. – Contribution Rate of Changes in Agricultural Industrial Structure to Agricultural Economic Growth (%)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Farming	19.76	12.34	11.17	9.14	5.94	4.54	2.68	4.31	5.84	7.51
Forestry	10.78	20.09	10.17	12.93	8.90	4.02	6.37	7.44	9.08	6.32
Animal husbandry	6.65	23.13	5.15	4.08	1.42	2.45	6.32	-3.61	-2.26	15.22
Fishery	13.58	17.15	14.54	10.12	6.73	4.67	5.36	6.28	4.79	3.63
Auxiliary industry	10.88	12.48	11.17	11.30	10.83	10.17	11.23	10.86	9.57	10.63
Gross agricultural output value	14.25	16.34	9.52	7.91	4.99	4.16	4.50	2.68	3.89	9.15
M	14.56	16.54	9.61	7.98	5.05	4.18	4.55	2.86	4.03	9.28
Structural contribution rate	-0.31	-0.20	-0.09	-0.07	-0.06	-0.02	-0.05	-0.18	-0.15	-0.13

As can be seen from Table 4, the contribution rate of agricultural industrial structure to agricultural economic growth shows an overall upward trend, rising from -0.31% in 2010 to -0.13% in 2019. However, the contribution rate of agricultural industrial structure and its changes to agricultural economic growth is still weak and has a negative effect on agricultural economic growth. The task of adjusting and optimizing agricultural industrial structure is still grim.

2.3 Regression analysis of agricultural industrial structure to agricultural economic growth

Combined with the calculation results of the contribution rate of agricultural industrial structure change to agricultural economic growth, using statistical software Stata.13 and regression analysis method, a regression model is constructed with the growth rate of agricultural total output value *y* as the dependent variable and the growth rate of output value of farming, forestry, animal husbandry, fishery and auxiliary industry (x_1, x_2, x_3, x_4 ,x_5) as the independent variables. It is concluded that at the significance level of 5%, auxiliary industry has not passed the significance test, so the insignificant variable is eliminated. The analysis results are shown in Table 5.

Table 5. – Regression analysis of the influence of changes in agricultural industrial structure on agricultural economic growth

y	Coef.	Std.Err.	t	p>|t|
x_1	0.4959	0.0114	43.67	0.000
x_2	0.0786	0.0156	5.03	0.004
x_3	0.2823	0.0055	51.55	0.000
x_4	0.0988	0.0176	5.63	0.002
_cons	0.0034	0.0009	3.83	0.012

After eliminating the insignificant variables, the statistic F value=4349.10, and the significance test of the equation P=0.0000, indicating that the linear relationship of the model is significant. The goodness of fit coefficient R^2=0.9997, close to 1, indicating that the model has a good fitting effect. The regression model is as follows:

$$y = 0.0034 + 0.4959x_1 + 0.0786x_2 + 0.2823x_3 + 0.0988x_4 \quad (7)$$

The regression coefficients of each variable in the model reflect the elasticity of the influence of agricultural sectors on agricultural economic growth in China. The coefficients of farming, forestry, animal husbandry and fishery are 0. 4959, 0. 0786, 0. 2823 and 0. 0988 respectively, that is, the growth rate of agricultural output value will increase 0. 4959% if the growth rate of farming output value increases by 1%; the growth rate of agricultural output value will increase by 0. 0786% if the growth rate of forestry output value increases by 1%; the growth rate of agricultural output value will increase by 0. 2823% if the growth rate of animal husbandry output value increases by 1%; the growth rate of agricultural output value will increase by 0.0988% if the growth rate of fishery output value increases by 1%.

3. Conclusions

(1) From the results of grey correlation analysis, farming is still the most important factor affecting the growth of agricultural economy in China. Fishery correlation degree is the next, and its potential influence on economic growth needs to be further explored. Forestry and animal husbandry have a relatively small impact on economic growth, but higher than auxiliary industry, and are still the industries that cannot be ignored in the process of structural adjustment of agricultural economy.

(2) Since 2009, the proportion of farming in China's agricultural structure has been more than 50% and shows a trend of slow rise, and it is still the leading industry in China's agriculture. The proportion of animal husbandry in the agricultural industrial structure is second only to farming, but there is an obvious trend of decline. Forestry and fishery accounted for a relatively small, and there is a slow upward trend, the development is lagging behind. On the whole, the negative effect of China's agricultural industrial structure adjustment on the contribution of agricultural economic growth is gradually weakening. The internal structure of China's agriculture is not coordinated, and the outstanding problems are too high proportion of farming, lagging development of fishery and forestry. The single internal structure of agriculture is not conducive to making full use of China's abundant natural resources and improving the ecological environment, nor is it conducive to improving the ability of agricultural production to resist natural and market risks.

(3) Through the regression analysis of the main factors of agricultural economic growth, it can be seen that the growth rate of China's agricultural gross product will increase by 0.4959%, 0.0786%, 0.2823% and 0.0988% if the output value growth rate of farming, forestry, animal husbandry and fishery increases by 1%, respectively. It can be seen that the growth of agricultural economy in China still mainly depends on the growth of output value of farming and animal husbandry. Single agricultural structure is still the main factor restricting the healthy development of its agricultural economy.

In general, the current adjustment of agricultural industrial structure in China still has a certain space for development, and the economic benefits brought by the optimization of agricultural industrial structure have the potential for further development.

REFERENCES

1. China National Bureau of Statistics [Electronic resource]: China Statistical Yearbook 2020. – Mode of access: http://www.stats.gov.cn/tjsj/ndsj/2020/indexch.htm. – Date of access: 01.04.2021.
2. Deng Julong. Foundation of grey theory/ Deng Julong. – Wuhan: Huazhong University of Science and Technology Press,2002.
3. Yang Zhongna. Impacts of agricultural structure adjustment on agricultural economic growth in southern Xinjiang/. Yang Zhongna, Dang Jijun //J. Chinese Journal of Agricultural Resources and Regional Planning. – 2014. – Vol.35, No.3. – P. 85–92.

UDC 330.1

THE ESSENCE OF EQUITY CAPITAL AND ITS IMPORTANCE FOR THE FINANCIAL CONDITION OF THE ORGANIZATION

A. KHARCHANKA, M. PRIMAKOVA
Polotsk State University, Belarus

The author analyzed and systematized approaches to the essence of the concept of "equity capital", the author's definition of this concept, which most accurately reflects its content, the author's classification is given, the functions and directions of analysis of equity capital are considered.

One of the goals of financial management of any organization can be called ensuring its financial stability. The financial stability of the organization is characterized by various indicators, but one of the main indicators is the amount of equity capital.

The capital of an organization is a part of financial resources directed to current financial and investment activities in order to make a profit [1]. By structure, based on the sources of funds, the capital of most organizations consists of debt and equity capital. Borrowed capital is funds raised on a returnable (most often paid) basis. Equity capital is one of the most important sources of funds for the existence and development of the organization.

Economists interpret the essence of the concept of "equity capital" in different ways. For some, this is the net value of property, defined as the difference between the value of the organization's assets and its financial liabilities [2], someone presents it as an investment of the owners, as well as the profit accumulated over the period of the business entity's activity [3]. With the aim of a detailed study of the essence of the concept of "equity capital" and the formulation of a more complete, in our opinion, definition, we considered the approaches to the interpretation of this concept, proposed by various authors and presented in the regulatory documents of the CIS countries.

After analyzing the collected data, we came to the conclusion that equity is the net worth of the organization's property used as a source of assets formation, which is calculated by subtracting the amount of liabilities from the amount of assets.

The composition of equity capital can be represented as follows (fig. 1):

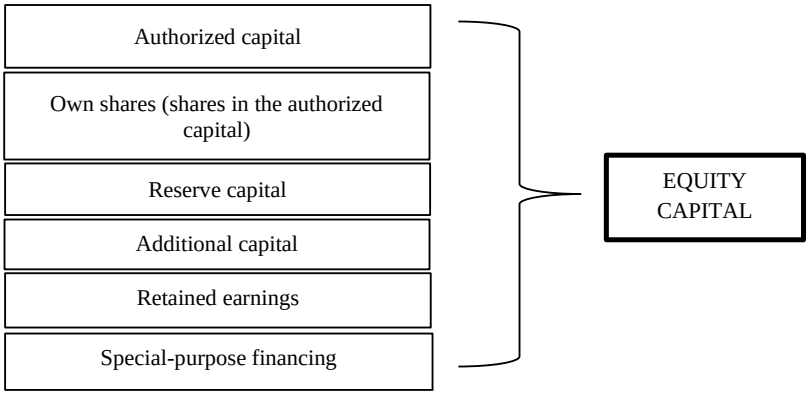


Fig. 1. – Composition of equity

The key component of equity capital is the authorized capital. The authorized capital is a set of funds contributed by the founders when creating an enterprise. According to the legislation of the Republic of Belarus, its size must be fixed in the constituent documents.

Own shares (stakes in the authorized capital) - in this case, shares that were purchased from shareholders by the owner-joint-stock company for the purpose of their resale or cancellation.

The reserve capital is a fund formed by the organization from the profit, which, in the event that the size of the current profit is insufficient, should be used for remuneration of labor, payment of dividends, compensation for possible losses from economic activities, etc.

The part of an organization's equity, referred to as additional capital, is the amount resulting from:

- markdowns, revaluation of intangible and tangible assets of the company, its fixed assets;
- exchange rate differences;
- sales of the company's shares received in excess of the par value of the outstanding shares.

Retained earnings - net profit (or part of it), which is not distributed among shareholders and is used to replenish the company's reserves or other business purposes.

Targeted financing - funds received by an organization free of charge for the implementation of certain goals and for carrying out targeted activities.

The classification of equity capital can be represented as follows (fig. 2):

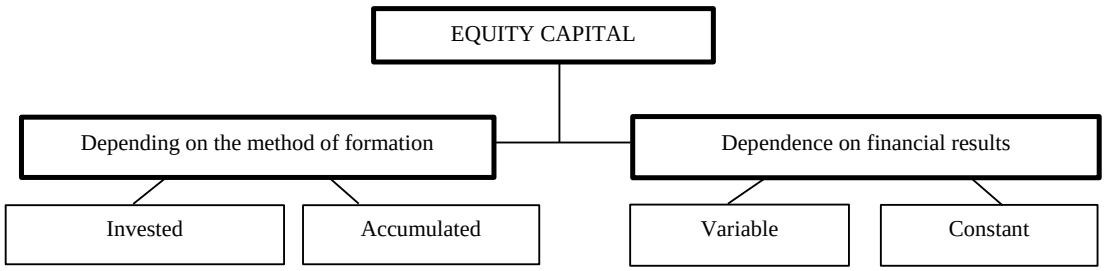


Fig. 2. – Classification of equity capital of organizations

Our proposed classification considers equity capital from two aspects: from the side of the initial formation and from the side of further changes and replenishment.

From the side of the initial formation, equity capital can be characterized by such concepts as invested capital and accumulated capital. Invested capital is capital invested by the founders of the organization. Thus, the invested capital will be the authorized capital of the organization and its own shares (stakes in the authorized capital). Note that targeted financing can also be attributed to the invested capital, but in this case, not only the founders can act as an investor.

Accumulated capital is capital that has been created in excess of the original share capital of the organization. The accumulated capital includes retained earnings, reserve and additional capital.

On the other hand, the invested capital in the short term is not highly dependent on the financial result, therefore it can be called constant. The accumulated capital is directly dependent on the financial result, therefore it will be variable capital.

Equity capital has the following functions: protective, operational, regulatory, distributive, informational.

Based on the opinion of O. V. Efimova [4], the operational function is that the share capital is constant in the short term and provides the company with the possibility of existence.

The essence of the protective function is that the requirement for the organization to have net assets, the value of which must be unregistered authorized capital. Offers a kind of protection of the interests of the organization's creditors.

The distribution function is to distribute among the owners of the profit remaining at the disposal of the enterprise. The regulatory function includes the regulation of the powers of their owners in the management of a joint stock company.

The essence of the information function is to inform external and internal users of information about the financial position and the level of its stability.

Analysis of the condition of equity capital and the efficiency of its use is one of the most important indicators of the financial condition of an enterprise, as well as a comprehensive assessment of the effectiveness of its financial and economic activities.

L.T. Gilyarovskaya [5] believes that the analysis of the efficiency of using the organization's equity capital is "... a way of accumulating, transforming and using information in accounting and reporting." Analyzing the capital of the organization, it is necessary to characterize the change in its structure and dynamics. Today, in a market economy, for the effective and successful functioning of an organization, it is necessary to organize effective management of its resources, which is based on the formation of the organization's resources, their rational distribution and effective use, which is based on planning and analysis.

Analysis of the efficiency of using the organization's equity capital is a way of accumulating, transforming and using information in accounting and reporting. Analyzing the organization's equity capital, it is necessary to characterize changes in its volume, structure, dynamics.

When analyzing equity capital, two tasks are solved:

– check the security of the enterprise with its own capital;
– study the effectiveness of using sources of their own funds.

The following main tasks of the analysis of the organization's equity capital can be distinguished:

– study of the composition and structure of equity capital;
– identification of sources of formation of the organization's own capital;

- study of the impact of changes in the sources of equity capital of the organization on its financial stability;
- identification of the factors of changes in the organization's equity capital;
- assessment of the organization's ability to preserve its capital;
- assessment of the possibility of increasing the capital of the organization;
- determination of restrictions on the disposal of current and accumulated retained earnings;
- substantiation of the optimal variant of the ratio of equity and debt capital
- assessment of the efficiency of using equity capital;
- assessment of equity capital turnover;
- assessment of the return on equity of the organization;
- informing the management of the enterprise for making management decisions aimed at eliminating the reasons that negatively affect the financial condition of the enterprise.

The analysis of the efficiency of using equity capital can be carried out using various types of models that allow to identify and structure the relationship between the indicative ones considered in the analysis.

For the analysis of equity capital, models based on the use of accounting information are mainly used - descriptive models. These models are descriptive in nature, and they include, for example: dynamic analysis, structural analysis, trend analysis, factor and coefficient analysis, as well as the presentation of financial statements in various analytical sections.

To analyze the financial condition of the organization, including the analysis of equity capital, the following indicators are used:

- equity ratio;
- total capital inflow rate;
- equity capital inflow ratio;
- equity retirement ratio;
- capitalization ratio;
- investment capital turnover;
- financing ratio (solvency ratio);
- financial strength ratio;
- return on equity;
- change in the value of net assets;
- change in the return on equity.

For a more complete analysis of equity capital, it is necessary to conduct a factor analysis of these indicators in order to find out which indicators and to what extent have an impact on the performance indicators.

Factor analysis of the use of the organization's equity capital will help identify reserves for improving the financial condition of the organization and make correct and effective management decisions.

The last stage in the analysis of the use of equity capital is to inform the managers of the organization about the results of the analysis using various reports for making effective management decisions.

Thus, equity capital plays an important role in the financial system of an organization, as it is a necessary base for its financial stability and effective functioning. Equity capital performs important functions, being a guarantee for the protection of creditors' interests, a means that gives a legal opportunity for the existence of an organization and a regulator of the legal possibilities of shareholders.

REFERENCES

1. Бельчина, Е. М. Финансы организации: учебное пособие для студентов вузов по специальности "Экономика и организация производства в отраслях промышленного комплекса" / Е. М. Бельчина; Минсельхозпрод РБ, УО "БГАТУ". — Минск : БГАТУ, 2018. – 304 с.
2. Кондраков, Н.П. Бухгалтерский учет: Учебник. / Н.П. Кондраков. — М.: ИНФРА-М, 2007. - 592 с.
3. Копеина, Е.П. Теория бухгалтерского учета: учебное пособие / Е.П. Копеина; Международная академия бизнеса и новых технологий (МУБиНТ). — Ярославль: Образовательная организация высшего образования (частное учреждение) «Международная академия бизнеса и новых технологий (МУБиНТ)», 2017. - 128 с.
4. О.В. Ефимова. Финансовый анализ. Современный инструментарий для принятия экономических решений. 2012 [Электронный ресурс]. – Режим доступа: https://finbook.news/book-kommertsiya/finansovyiy-analiz-sovremennyiy-instrumentariy.html. – Дата доступа: 12.02.2021.
5. Гиляровская, Л.Т. Экономический анализ – Учебник. Л.Т. Гиляровская – М.: «Юнити-Дана», 2004. – 615 С.

Economics

UDC 658.7

DEVELOPMENT OF INTERNATIONAL MULTIMODAL TRANSPORTATION IN THE DIRECTION OF BELARUS-CHINA

E. SHURMAN, P. LAPKOVSKAYA
Belarusian National Technical University, Minsk, Belarus

Belarus trade relations with China are currently growing. The development of relations with China is a priority direction of the foreign policy of the Republic of Belarus. However, the development of foreign trade relations between the Republic of Belarus and China is impossible without transport services that ensure the promotion of goods between trading partners.

The People's Republic of China is one of the dynamically developing countries of the world, which is of interest to Belarus as an extensive market for manufactured products, raw materials and materials. In turn, China provides the Belarusian economy with relatively cheap equipment, as well as mass-consumption goods. Thanks to this, economic cooperation with China is actively developing [1].

Belarus' participation in the implementation of the "One Belt and One Road" project (the Silk Road Economic Belt and the Maritime Silk Road of the XXI century) contributes to the development of relations between Belarus and China. The initiative was launched by China in 2013 with the aim of building a trade and logistics infrastructure connecting Asia with Europe and Africa. The Republic of Belarus, despite its small scale, is an active participant in the implementation of this global investment project.

Within the framework of the project, economic corridors are being actively formed: the China-Pakistan Economic Corridor, the China – Mongolia – Russia economic corridor and the New Eurasian Continental Bridge [2]. For the Republic of Belarus, the new Eurasian Continental Bridge is of particular interest, since its development will allow obtaining economic benefits from the increase in transit flows from China to the EU and back.

However, the development of foreign trade relations between the Republic of Belarus and China is impossible without transport services that ensure the promotion of goods between trading partners.

Multimodal transportation is transportation that is carried out by different modes of transport, but within the framework of a single contract. The type of transport does not matter — it can be rail, water, road, and so on. Multimodal international transport is used in such cases: there is no direct single mode of transport communication between the sender and the recipient of the cargo; direct single mode of transport communication is not suitable for the consignee due to the high price or long delivery time [3].

Intermodal transportation is transportation that is carried out by different modes of transport, and the customer may involve several companies for transportation. The type of transport in the case of intermodal transport can also be any, and the responsibility is evenly distributed among all participants.

The advantages of multimodal transport are reflected in their features. One of the most significant advantages is:

1. They can be used when there is no direct single-mode communication between the shipper and the recipient.
2. Reduction of risks and costs due to the fact that the customer places an order in one company. The client does not have to fill out a large number of documents. This allows you to save time and effort, solve the issue as quickly and efficiently as possible.
3. Reduced waiting time for cargo. The logistics company will independently involve reliable, proven contractors in the execution of the order. Thanks to the well-coordinated work, they will deliver the cargo to the destination on time, without delay.
4. Security. The client does not risk anything by entrusting the execution of the order to a reliable company. The full responsibility of the transport operator for the safety of delivery.

The Republic of Belarus implements a multi-vector foreign economic policy and actively participates in international integration processes. Belarus is an export-oriented state with a well-developed manufacturing sector and agriculture. 61% of the products produced are exported. Belarus maintains trade relations with more than 200 countries around the world [4].

The commodity structure of Belarusian exports includes more than 1000 commodity items. The most important export items are oil and refined products, potash and nitrogen fertilizers, metal products, trucks and cars, tractors, tires, dairy and meat products, furniture.

By the end of 2020, according to Belstat, the foreign trade turnover of goods of the Republic of Belarus amounted to 61,659. 3 million US dollars (by the end of 2019 – 72,278. 4), including exports – 29,040. 5 million

dollars, imports-32,618. 8 million dollars. If compared with the level of 2019, based on current prices, the turnover of foreign trade in goods amounted to 85.1%. Exports – 88.1%, imports-82.6%. According to the results of 2020, compared to 2019, exports of goods in physical terms decreased by 0.4%. Imports decreased by 9.5%. Average export prices decreased by 11.5%, while import prices decreased by 8.7% [5].

Currently, the Republic of Belarus and the People's Republic of China have reached a high level of cooperation. China is the main political, trade and economic partner of Belarus in Asia (Table 1).

China is one of the most important trade and economic partners of the Republic of Belarus. The dynamics of the development of bilateral trade can be judged by the fact that in general, in the twenty-five years since the establishment of diplomatic relations, the mutual trade turnover has grown almost 100 times: from 34 million US dollars in 1992 to more than 3.5 billion US dollars [6].

Table 1. – Volume of trade in goods and services of the Republic of Belarus with China (in thousands of US dollars)

Year	Trade turnover	Export	Import	Balance sheet
2015	4 168 963	1 257 378	2 911 585	- 1 654 207
2016	3 586 178	800 533	2 785 645	- 1 985 112
2017	3 866 266	740 011	3 126 255	- 2 386 244
2018	4 394 055	905 890	3 488 165	- 2 582 275
2019	5 299 768	1 033 590	4 266 178	- 3 232 588

Source: Belarusian-Chinese Government Cooperation Committee

The table shows that the annual turnover in foreign trade in goods and services of the Republic of Belarus and China tends to grow. However, foreign trade in goods and services has a negative balance, mainly caused by the growth of higher volumes of imports over exports in bilateral relations. In the sphere of trade and economic cooperation, there is a consistent growth in the volume of mutual trade in goods and services. At the end of 2019, the trade turnover of Belarus and China amounted to 5.3 billion US dollars, reaching a historic high, the growth rate – 120.6%. The growth rate of exports is 114%, imports-122.3% [6].

In order to stabilize the growth of exports of goods, measures were taken to reduce the traditionally high share of potassium by increasing the share of agricultural products and woodworking (table 2) [6].

Table 2. – Positions of Belarusian export and import to / from China

The largest positions of Belarusian exports to China		The largest positions of Belarusian imports from China	
Product name:	Export amount:	Product name:	Export amount:
Potash fertilizers	$ 246 million	Communication equipment and its parts	$267,1 million
Polyamides	$ 45,3 million	Parts and accessories for cars and tractors	$110,5 million
Articles made of stone or other mineral substances	$ 7,8 million	Metal structures made of ferrous metals	$59 million
Data carriers	$ 5,5 million	Fabrics made of synthetic complex threads	$55,3 million
Flax-raw or processed flax.	$ 5,4 million	Frozen vegetables	$34,1 million
Electronic integrated circuits.	$ 3,4 million	Illuminating equipment	$33,5 million
Raw timber.	$ 3,1 million	Pipe fittings	$29,4 million
Leather, additionally treated after tanning	$ 3 million	Televisions, monitors, projectors	$28,8 million
Milk whey.	$ 3 million	Antibiotics	$28 million
Unkempt wool	$ 2,9 million	Shoes	$23,1 million

Currently, 97 Belarusian agricultural producers are accredited in China, including: 55 dairy products, 17 frozen beef, 9 frozen chicken meat, 7 processed fish products, 4 sugar beet pulp and mink skins, and 1 peat. The Chinese side is considering applications for the admission of Belarusian canned meat, chilled beef and offal, as well as accreditation for 9 new producers, including: dairy feed additives – 6, dairy products – 2, dairy baby food – 1, consultations are being held on lifting the ban on the import of Belarusian pork [6].

In order to promote the export of "sensitive" (difficult to access) goods to China, such as canned meat, honey, other food products, alcoholic beverages, cosmetics, baby dry food, medical products, etc., to reduce the number of intermediaries and increase added value, the Embassy is actively working with Belarusian regulators and exporters on the use of preferential policies for cross-border e-commerce in China (benefits for customs payments, certification, accreditation and labeling) [6].

When transporting goods from Belarus to China, a variety of routes are used, which are determined depend on using transport. Taking into account that the main method of cargo delivery to China and back to the Republic of Belarus is container transportation, the following types of transport are used: road, rail, sea and air transport.

In practice, when determining the route, a combination of several modes of transport is used:

- marine-automobile;
- marine-railway-automobile;
- sea-rail;
- air-road;
- air-railway;
- air-railway-automobile.

When using sea transport, cargo transportation is carried out through the seaports of China: Shanghai, Ningbo Hong Kong Yantian Qingdao Xingang [1]. All transportation can be carried out not only from any port in China, but also from any inland Chinese city with delivery to the seaport. A comparison of the types of international transport carried out to China is made (Table 3).

Table 3. – Comparative analysis of types of international transport in the direction of Belarus-China

Type of cargo transportation	Description	Type of cargo	Advantages	Disadvantages	Timing	Cost
1	2	3	4	5	6	7
Air mail	This option is also suitable for the delivery of light and small-sized cargo		As fast as possible	Expensive. 3-7$ for delivery of each kilogram of cargo	3-7 days after placing the order	Calculated individually
Cargo delivery by sea	The cargo is placed in a container and sent to the customer by sea	Furniture, appliances, cars, clothing, shoes, and other bulky or heavy goods	Not a high price. cargo is securely packed, continuity in operation, high competitiveness of land transport	Not much speed, depending on the natural geo. and klim. conditions, dependence on loading/unloading capacities	40-45 days	$ 50-150 for 1 cubic meter about $ 2100 for a small container 20 feet long
Railway transport	When delivered from the north, east and northeast of China, where the Harbin Railway passes	Large loads of heavy weight or serious shipments of goods	Large traffic volumes/load capacity, independent of climatic conditions, developed railway network. The possibility of laying tracks almost everywhere.	Irrationality of transportation for small cargo and short distance, the presence of cargo transshipment	18-25 days, about a month.	$ 70-350 per cubic meter

The ending of table 1

1	2	3	4	5	6	7
Air carriage	The aircraft is suitable for the transport of perishable goods		High speed of delivery, clear delivery times, cargo delivery in all directions, delivery of perishable goods, high safety in transit, low insurance costs, the possibility of delivery in emergency situations	The need for special equipped platforms, weather dependence, size/weight restrictions	2-4 days	If the product is less than $100 thousand, the volume is >5 cubic meters and the weight is <1 ton, and the income from it will not bring profit at the level of 200-300%, then it is more profitable to transport the product from China by sea.
Automobile transport	Suitable for transporting food, non-food and agricultural goods.		Easy to track cargo location, flexible transportation, high compatibility with other modes of transport,	Easy to track cargo location, flexible transportation, high compatibility with other modes of transport,	About 14 days	It consists of the costs of transportation, customs declaration and additional services

Based on the results of the analysis, we can conclude that:

– it is better to transport bulky and heavy items by rail.

– expensive shipments of goods are more convenient to deliver by sea in containers, and on arrival at the port-by rail/road.

– for small goods, air or road transport is better.

Thus, we can draw the following conclusions about the problems that exist in the organization of international multimodal cargo transportation to China:

1. Uneven infrastructure. On the east coast of China, logistics is well developed. The central mainland can not boast of a well-established infrastructure. In the central part, there are few loading / unloading areas, modern warehouses equipped with the necessary equipment, and there is no system for tracking cargo along the selected route.

2. High taxes on cargo transportation. According to the decree of the Government of the People's Republic of China, cargo transportation is subject to high interest rates on taxes and leases. To save money, transport companies load trucks as much as possible. This leads to downtime of cars that are loaded for weeks. Delivery times are delayed, and the goods themselves may be damaged during reloading.

3. Low qualification of the staff. China is a technically advanced country. But not all sectors of the economy have enough highly qualified personnel. Often, logistics companies employ inexperienced specialists who do not speak foreign languages.

4. Unified licensing. For cargo transportation in China, you need to get a single license (permission from several departments) and pay taxes. Cargo carriers will face the problem of uncoordinated work of transport institutions. The Ministry of Railway Transport does not belong to the Ministry of Transport. These structures work separately.

5. Local logistics. The activities of transport companies in China are often limited to one location. Therefore, it is rarely possible to transport cargo across the entire territory of the People's Republic of China using the services of one company. We have to build a logistics chain and cooperate with several contractors at once.

International cooperation in the field of logistics will increase the volume and improve the quality of logistics services in the Republic of Belarus. This cooperation can be developed within the framework of a strategic partnership between Belarusian and foreign participants in logistics activities, including in the implementation of the "One Belt and One Road" initiative.

REFERENCES

1. Контейнерные перевозки грузов между Республикой Беларусь и Китаем [Электронный ресурс]: Транспорт, грузоперевозки. – 2012. – Режим доступа: https://www.bibliofond.ru/view.aspx?id=564755.
2. «Один пояс, один путь»: полный текст речи Си Цзиньпина // Иностранные СМИ [Электронный ресурс]. – Режим доступа: http://inosmi.ru/politic/20170519/239391693.html/ (дата обращения: 10.04.2021).
3. Дмитрий Скляренко. Мультимодальные перевозки грузов: что это такое и как их использовать в своих интересах [Электронный ресурс]: Международные грузоперевозки. – Электрон.текст.дан. – 2017. – Режим доступа:https://vedinform.com/freight/container/multimodal.html.
4. Министерство иностранных дел Республики Беларусь Источник [Электронный ресурс]: Внешняя торговля / Общая информация. – Минск,2021. – Режим доступа: https://mfa.gov.by/trade https://mfa.gov.by/trade/.
5. Редакция Myfin.by [Электронный ресурс]: Экспорт. – Минск, 2021. – Режим доступа: https://myfin.by/wiki/term/eksport.
6. Министерства иностранных дел Республики Беларусь/Белорусско-Китайский межправительственный комитет по сотрудничеству [Электронный ресурс]: Торгово-экономические отношения. – Минск, 2020. – Режим доступа: http://belaruschina.by/ru/belarus_china/relations/present/torgovo-ekonomicheskie-otnosheniya.html.

UDC 658.5:504.052

RESEARCH ON THE ELEMENTS OF ENTERPRISE ENVIRONMENTAL MANAGEMENT UNDER THE CONCEPT OF GREEN DEVELOPMENT

CHENG SHANYI, A. MURZIN
Southern Federal University, Rostov, Russia

Green development is the core embodiment of the concept of sustainable development, while environmental management is the core issue to achieve green development, and environmental management elements are the focus of environmental management research. This article analyzes the input of environmental pollution in China and Russia in recent years, draws out the elements of environmental management, and introduces the characteristics of each element of environmental management according to the progress of its own research, focusing on the environmental control and risk assessment that the author thinks are more critical. Finally, it summarizes the role of environmental management elements.

In the global economy, some problems of the natural environment are closely related to enterprises. The natural environment has become an important part of the enterprise investment decision-making, product development, production operation and other processes that need to be considered. My research field is the sustainable development management of enterprises based on green production. The implementation of green development concepts and environmental management of enterprises is one of the core issues of the research.

Overview. The environmental problem is a global issue. Take the example of China, the country with the fastest economic development in the last 40 years. From the establishment of the People's Republic of China in 1949, it has received support from other countries and established its own independent industrial system, built the local environmental protection system. Table 1 shows China's investment in environmental pollution and industrial pollution control in recent years.

Table 1. – China's environmental protection investment

Year	Total investment in environmental protection	GDP	Percentage
	Unit: 100 million yuan	Unit: 100 million yuan	
2010	7612.20	412119.30	1.85%
2011	7114.00	487940.20	1.46%
2012	8253.50	538580.00	1.53%
2013	9516.50	592963.20	1.60%
2014	9575.50	643563.10	1.49%
2015	8806.30	688858.20	1.28%
2016	9219.80	746395.10	1.24%
2017	9539.00	832035.90	1.15%

Data from China Statistical Yearbook

As shown in the table, China's total investment in environmental pollution control has increased year by year, from 761.2 billion yuan in 2010 to 953.9 billion yuan in 2017, an increase of over 25% in 8 years. When a country's investment in environmental pollution control reaches 2% to 3% of its GDP, the country's environmental pollution will be systematically repaired and improved, but the data shows that China's environmental pollution control investment accounts for the total GDP less than this ratio.

The following is the data of the Russian Federation. As a traditional industrial power, the data of Russia is very representative in Eastern Europe.

Table 2. – Russia's environmental protection investment

Year	Total investment in environmental protection	GDP	Percentage
1	2	3	4
	Unit: bln rubles	Unit: bln rubles	
2012	239.17	68103.45	0.35%
2013	254.38	72985.70	0.35%

The ending of table 1

1	2	3	4
2014	269.84	79030.04	0.34%
2015	292.07	83087.36	0.35%
2016	306.53	85616.08	0.36%
2017	320.95	91843.15	0.35%
2018	345.46	103861.65	0.33%
2019	374.41	109193.15	0.34%

Data from Russia Statistical Yearbook

As shown in the table, Russia's investment in environmental pollution control has also increased year by year, from 239.17 billion rubles in 2012 to 374.41 billion rubles in 2019, an increase of close to 60% in eight years, and the proportion of GDP has hardly changed. It's great chance for improvement and promotion.

Elements of corporate environmental management and control. It is a very important practical issue to study how companies can effectively implement environmental management and control activities. The goal of enterprise environmental management and control activities is to create enterprise value. Under this goal, if the enterprise separates environmental management and control activities from the overall enterprise management and control system, then even if the enterprise meets the requirements of the environmental protection system, the enterprise's value maximization goal can't be achieved either. Fundamentally speaking, enterprise environmental management and control activities are ultimately a tool to achieve the overall goals of the enterprise. The implementation of enterprise environmental management and control should be based on the overall management and control system of the enterprise. The elements of corporate environmental management control include green control environment, environmental risk assessment, environmental control activities, environmental statistical reports, and internal environmental supervision systems.

Green control environment. The control environment includes the external environment and the internal environment. As far as the internal environment is concerned, it mainly includes corporate governance, corporate organizational structure and corporate culture.

Environmental risk assessment. As a prerequisite for controlling risks and correcting deviations, the essence of risk assessment is to quantify the possibility of an event or thing and the severity of the loss it brings. Under the concept of green development, the use of environmental resources will increase the possibility of corporate violation risks. Based on environmental protection laws and regulations and corresponding environmental accounting reports, companies should accurately assess the possibility of various environmental risks and the severity of their consequences, and decide whether and how to take corresponding control measures.

Environmental control activities. Control activities refer to the adoption of control measures to effectively control risks within a tolerable range in a timely and effective manner on the basis of risk assessment. Companies should analyze the causes of discrepancies based on environmental risk assessment and related environmental accounting reports, and take effective measures in a timely manner to correct discrepancies, so as to ensure that sustainable development strategies are effectively implemented on the right track. Enterprise environmental risk control activities should at least involve three aspects: environmental asset safety control activities, environmental laws and regulations control activities and environmental information quality control activities.

Environmental statistics report. Information and communication are the key to the five elements of management and control. Effective statistics and reports are the prerequisite and guarantee for discovering various environmental risks, avoiding risks and responding to them.

Internal environmental supervision system. The internal environmental supervision system can ensure the long-term and effective operation of environmental management and control.

Conclusion. Green development is an inevitable trend in the economic development of all countries in the world. In addition to the government's leadership, companies should actively pay attention to the various elements of environmental management and control, so as to provide reasonable guarantees for corporate goals under the background of the concept of green development. The sustainable development of the global economy and society must start from the ecological environment, from the corporate world as the largest consumer of resources and the largest polluter, and achieve resource conservation and recycling through corporate-level environmental management, and achieve energy conservation and emission reduction so as to enhance the overall competitiveness of the company and achieve sustainable development.

REFERENCES

1. Li Jingbo & Zhang Xianzhi. (2019). Green development concept and corporate environmental management control. Finance and Accounting (01), 19-21. doi:CNKI:SUN:CWKJ.0.2019-01-008.
2. China Statistical Yearbook. http://www.stats.gov.cn/tjsj/ndsj/2020/indexch.htm.
3. Russia Statistical Yearbook. https://rosstat.gov.ru/folder/11194.
4. Dai Lu & Zhi Xiaoqiang. (2015). Research on factors affecting corporate environmental management and control measures. China Soft Science (04), 108-120. doi:CNKI:SUN:ZGRK.0.2015-04-012.
5. Peng Shiyan. (2013). An analysis of the ways for Chinese companies to implement green management. Social Science Front (11), 65-67. doi:CNKI:SUN:SHZX.0.2013-11-010.

Economics

UDC 339.138

ONLINE VIDEO ADVERTISING AS A FORM OF ONLINE MEDIA ADVERTISING

A. MALEI, T. SERADA
Polotsk State University, Belarus

Scientific approaches of domestic and foreign scientists to the notion of "advertising" are considered in the article. Based on these considerations, the authorial definition of "online video advertising" is given.

Introduction. Currently, the trend of rapid development of the online sphere is seen everywhere. Banks, educational establishments and commerce are moving into the online space. This has a significant impact on the change of marketing strategies and their adaptation to the modern digital transformation, which increases the demand for online advertising. A market study of fifty different countries forecasts that their online video advertising budget will amount to $61 billion in 2021 against $45 billion in 2019, while the TV advertising budget will drop from $183 billion to $180 billion [1]. In this regard, the study of online video advertising as a type of online media advertising is relevant and practically significant.

Task. Define the concept of "online video advertising" based on the scientists' theoretical studies in marketing.

Methods of research. General logical, theoretical and empirical methods.

The main part. The phenomenon of online video advertising is quite new for marketing, and there is no unity of interpretation of the term in the literature. To determine what online video advertising is, we have analyzed the approaches of domestic and foreign scientists to the concept of "advertising" [2-13].

Table 1. – Analysis of the approaches of domestic and foreign scientists to the concept of "advertising"

Criteria / Author/source	For a fee	Non-personal	Transmission of information, communication	Means of promotion	Information about the consumer characteristics of goods and ser-	Uses the media	Means of influence	Implemented by the sponsor	Advertisers are known	Is distributed through various means	Promotion of goods and services	Aims at creating popularity, demand for goods, attracting attention	Aims at attracting the consumer	Sustains interest	Is distributed in any form	Announcement, alert	Motivates to action
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Kotler Ph.	+	+	-	+	-	-	-	-	+	-	+	-	-	-	-	-	-
BoveK.L., ArensW.	+	+	+	-	-	-	-	-	+	+	-	-	-	-	-	-	-
Wells W., Bernett J.	+	+	+	-	-	+	+	+	-	-	-	-	-	-	-	-	-
Pankratov F.G.	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-

The ending of table 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Veselov S.V.	+	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-
Orishev A.B.	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The Great Soviet Encyclopedia	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-
Common Language Marketing Dictionary	+	-	-	-	-	+	-	-	+	-	-	-	-	-	-	+	+
Ozhegov S.I.	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	+	-
Evremova T.V.	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
Law of the Republic of Belarus "About Advertising" dated 10.05.2007 № 225-3	-	-	-	-	-	-	-	-	-	+	+	+	-	+	+	+	-
Law of Russian Federation "About Advertising" dated 13.03.2006 № 38-FZ	-	-	-	-	-	-	-	-	-	+	+	-	-	+	+	+	-
Overall, %	46	31	46	15	15	15	15	8	23	23	23	39	8	15	23	39	8

Source: own elaboration based on the studied literature

From Table 2 we conclude that the basic criteria for advertising are as follows:
1) advertising is a paid activity;
2) advertising conveys information;
3) the purpose of advertising is to create popularity, attract attention, create demand for the product;
4) advertising is an announcement of certain information;
5) advertising disseminates information in a non-personalized way.

Thus, we have drawn up our own concept of the term "advertising". Advertising is a paid announcement, conveying information about a product/service, aimed at attracting attention and creating demand for it. We have established the essence of the concept of "advertising" through its types (figure 1) [14-16].

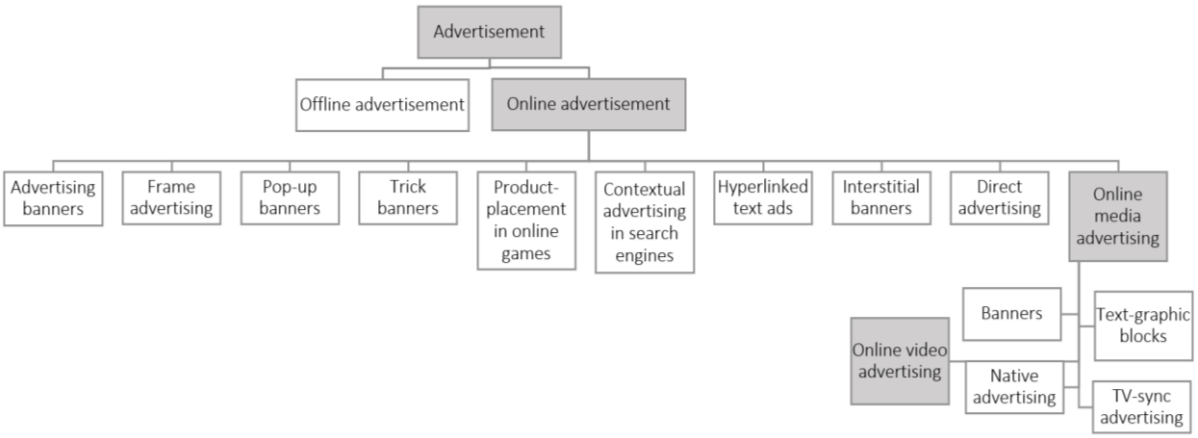


Fig.1. – Essence of the concept of "advertising" through its types

Source: own elaboration based on the studied literature

Based on figure 1, online media advertising is part of online advertising in the format of text, graphic information, audio or video content in the content of the Internet resource, on the websites visited by the target audience. Thus, online video advertising is a form of online advertising. To formulate a more detailed and systematic

definition of "online video advertising", we have studied its types. Based on various sources, we have made a table with the essence of the concept based on its types (Table 2) [17-23].

Table 2. – Essence of the concept of "advertising" through its types

By place of location	In video content	Pre-roll
		Mid-roll
		Pause-roll
		Post-roll
		Multi-roll
		Overlay
		Wow-roll
		Bumperads
		In-stream / TrueView In-Stream
		Teaser
		Vertical ads
	On the website	Top-line (Bill board banner)
		Out-Stream
		Fullscreen
		Ads with CPV (or Native Video Seeding)
	In mobile applications	Out-Stream
		Fullscreen
		Rewarded Video
		Interactive videos
	In search engines	
In technical terms	Staged video	With actors
		Without actors
	Screensaver	
	Animated (graphic) commercial	With the use of animation
		With the use of graphics
		With the use of graphics and animation
By the task	Educational video	
	Image video	
	Advertising video	
	Viral video	

Source: own elaboration based on the studied literature

Conclusion. Based on the structures compiled in figures 1 and 2, online video advertising is a paid advertisement in the format of video content distributed on the Internet, transmitting information about a product/service, aimed at attracting attention and creating demand for a product/service, placed directly in the content of the Internet resource (videos, websites, mobile applications, search engines), on the websites visited by the target audience, with a specific task, and created according to certain technical criteria.

REFERENCES

1. Online video viewing to reach 100 minutes a day in 2021[Электронный ресурс] // Zenith ROI Agency. – London, 02.10.1995. Mode of access: https://www.zenithmedia.com/online-video-viewing-to-reach-100-minutes-a-day-in-2021/. – Date of access: 20.02.2021.
2. Котлер, Ф. Основы маркетинга: Пер. с англ. / Ф. Котлер; общ. ред., вступ. ст. Е.М. Пеньковой. – Новосибирск : Наука, 1992. – 736 с.

3. Бове, К.Л. Современная реклама [Электронный ресурс] / К.Л. Бове, У.Ф. Аренс //Москва, 15.11.2015. Режим доступа: http://xn--90ahkajq3b6a.xn--2000-94dygis2b.xn--p1ai/marketing/mar1-1/mar317.pdf. – Дата доступа: 16.02.2021.
4. Уэллс, У. Реклама. Принципы и практика [Электронный ресурс] / У. Уэллс, Дж. Бернетт // Москва, 22.12.2014. Режим доступа: https://www.rulit.me/books/reklama-principy-i-praktika-download-412109.html. – Дата доступа: 16.02.2021.
5. Рекламная деятельность / Ф.Г. Панкратов [и др.]. – Изд.-торг. Корп. «Дашков и К°», Москва – 2002. – 272 с.
6. Веселов, С.В. Маркетинг в рекламе [Электронный ресурс] / С.В. Веселов // Москва, 11.04.2007. Режим доступа: http://www.nazaykin.ru/catalog/ru/marketing/market_v_reklame.htm. – Дата доступа: 16.02.2021.
7. Оришев, А.Б. Реклама: определение понятия, экономическая роль и ее особенности в России //Бизнес и дизайн ревю. 2016. Т. 1. № 4 (4). С. 5.
8. Большая советская энциклопедия [Электронный ресурс] // ООО «Direct Media». – Москва, 02.02.2003. Режим доступа: https://biblioclub.ru/index.php?page=dict&dict_id=63. – Дата доступа: 17.02.2021.
9. Common language marketing dictionary [Electronic resource] // New Ventures Services. – Drums, 14.09.2017. – Mode of access: https://marketing-dictionary.org/a/advertisement/. – Date of access: 1702.2021.
10. Ожегов, С.И. Толковый словарь русского языка [Электронный ресурс] / С.И. Ожегова // Москва, 17.08.2008. Режим доступа: https://slovarozhegova.ru/word.php?wordid=26926. – Дата доступа: 17.02.2021.
11. Ефремова, Т.Ф. Толковый словарь русского языка Ефремовой [Электронный ресурс] / Ефремова Т.Ф. // DANESCOTRADINGLTD. – Лимассол, 23.08.2006. Режим доступа: https://www.efremova.info/. – Дата доступа: 17.02.2021.
12. Закон Республики Беларусь «О рекламе» от 10.05.2007 г. № 225-З.
13. Закон Российской Федерации «О рекламе» от 13.03.2006 г. №38-ФЗ.
14. Виды рекламы [Электронный ресурс] // Санкт-Петербург, 10.10.2006. Режим доступа: http://www.marketch.ru/marketing_dictionary/marketing_terms_v/types_of_advertising/. – Дата доступа: 20.02.2021.
15. Интернет-реклама [Электронный ресурс] // Санкт-Петербург, 10.10.2006. Режим доступа: http://www.marketch.ru/marketing_dictionary/marketing_terms_i/internet-reklama/. – Дата доступа: 20.02.2021.
16. Подробно о медийной digital-рекламе: форматы и преимущества [Электронный ресурс] // Минск, 02.02.2019.Режим доступа: https://nt.technology/ru/blog/media-ad/. – Дата доступа: 20.02.2021.
17. Мы – Media Nation [Электронный ресурс] // ООО «Internet Masters» – Москва, 27.01.2009.Режим доступа: https://medianation.ru/about/. – Дата доступа: 20.02.2021.
18. Подробный гид по видеорекламе [Электронный ресурс] // ООО «Internet Masters» – Москва, 27.01.2009. Режим доступа: https://medianation.ru/blog/youtube/podrobnyy-gid-po-videoreklame/. – Дата доступа: 20.02.2021.
19. Википедия. Видеореклама [Электронный ресурс] // WikimediaFoundation, Inc. – США, 12.01.2001. Режим доступа: https://ru.wikipedia.org/wiki/%D0%92%D0%B8%D0%B4%D0%B5%D0%BE%D1%80%D0%B5%D0%BA%D0%BB%D0%B0%D0%BC%D0%B0#%D0%92%D0%B8%D0%B4%D1%8B_%D0%B2%D0%B8%D0%B4%D0%B5%D0%BE%D1%80%D0%B5%D0%BA%D0%BB%D0%B0%D0%BC%D1%8B_%D0%B2_%D0%B8%D0%BD%D1%82%D0%B5%D1%80%D0%BD%D0%B5%D1%82%D0%B5. – Дата доступа: 20.02.2021.
20. Видеореклама в интернете: виды и где её запустить [Электронный ресурс] // Павел Цубко – Смела, 18.04.2016. Режим доступа: https://pavel-tsybko.biz/videoreklama-v-internete/. – Дата доступа: 20.02.2021.
21. Видеореклама: виды и выводы [Электронный ресурс] // Москва, 05.05.2007. Режим доступа: https://www.promoteh.ru/articles/video-advertising/. – Дата доступа: 20.02.2021.
22. Технологии производства видеорекламы [Электронный ресурс] // DANESCOTRADINGLTD. – Лимассол, 08.07.2014. Режим доступа: https://studme.org/34922/marketing/tehnologii_proizvodstva_videoreklamy. – Дата доступа: 20.02.2021.
23. Video Distribution: The Best Places to Use and Share Video [Электронный ресурс] // – Seattle, 27.01.2011. Mode of access: https://www.vidyard.com/blog/video-distribution/#online-video-distribution-the-most-important-channels. – Date of access: 22.02.2021.

Economics

UDC 658.8.012.12

THE FOREIGN TRADE ACTIVITIES OF FOOD INDUSTRY ENTERPRISES OF THE REPUBLIC OF BELARUS

V. DUBEIKO, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

The article presents the results of the analysis of foreign trade activities of food industry enterprises of the Republic of Belarus; the assessment of the country's export potential in recent years and in the context of the COVID-19 pandemic was given; it was concluded that measures were taken to improve the competitiveness of products of the country's food industry to expand the geography of exports.

The Republic of Belarus implements a multi-vector foreign economic policy and actively participates in international integration processes. Belarus is an export-oriented state with a well-developed manufacturing sector and agriculture. 61% of products manufactured by enterprises of the Republic of Belarus are exported. Belarus maintains foreign trade relations with more than 200 countries of the world.

The food industry of the Republic of Belarus is a strategically important sector of the national economy, which is developing dynamically and focused primarily on export. This industry produces almost 18% of the products of all enterprises of the agro-industrial complex of the country. In the country's gross domestic product, the share of agriculture is about 7% [1].

More than 1,100 enterprises are involved in the food industry of the Republic of Belarus that produce food products, alcoholic and non-alcoholic beverages, tobacco and tobacco products. The largest food industry enterprises in the country are typical for the meat and meat canning, dairy, confectionery and sugar sectors, small ones for the starch and butter sectors.

In large cities of the Republic of Belarus, there are bread, meat and milk factories, confectionery factories, and butter, sugar and canning factories are located in the places of mass production of raw materials that they process (figure 1).

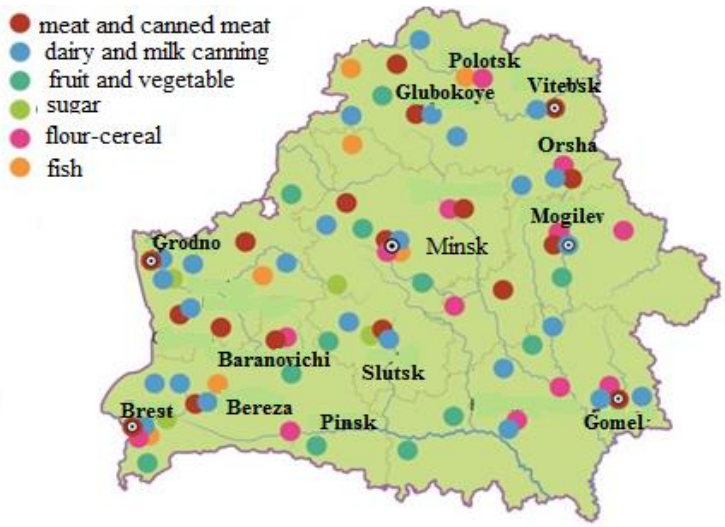


Figure 1. – Concentration of food industry enterprises on the territory of the Republic of Belarus

Note: source [1]

Only about 20 food industry enterprises of Belarus have the right to export food products to the countries of the European union, which is a very low figure. They supply the European Union mainly non-alcoholic and alcoholic beverages, confectionery, canned fish. 10 Belarussian food industry enterprises have recently got the right to supply milk and dairy products to the countries of the European union.

In 2020, the foreign trade turnover of the Republic of Belarus reached USD 61.7 billion, which is 21% more than in 2016. Of the total, the food industry showed an increase in exports by 4.4%.

Belarus is faced with the task of expanding the geography of agricultural exports. In 2019, the country's agricultural products were supplied to 104 countries of the world.

The exports geography of agricultural products and food products was 84.7% to the countries of the Eurasian economic union, 4.4% to the European union, and 10.9% to other countries and was formed taking into account the highest economic efficiency of export sales for agricultural and processing enterprises of the Republic. Belarus [2].

The unfavorable forecast of the prospects for the sale of Belarussian products on the Russian market also causes concern. In Russia, the food security doctrine has been adopted, which provides for the maximum saturation of the domestic market with its own products. In 2020, in comparison with 2010, it was planned to increase the production of agricultural products in comparable prices by 39%, and food products - by 60 % in the Russian Federation. Even higher growth rates are planned for the group of meat and meat products, milk and dairy products. This direction refers to the agricultural priorities of the first level. In such a situation, it is necessary to integrate with Russian and Kazakh manufacturers [3].

In order to increase the export of Belarusian organizations that produce food products, the main attention should be focused on the introduction of high-tech, waste-free and resource-saving technologies in them. At the same time, the capacities of enterprises should be increased in accordance with the growth of production of raw materials, especially at the meat and dairy, vegetable canning and sugar enterprises.

The Republic of Belarus is modernizing its food industry enterprises, increasing the production of dairy products and diversifying exports. According to the data of the Ministry of Agriculture and Food of the Republic of Belarus, in 2019 the export of dairy products amounted to USD 2,342.9 million, which is 34% higher than in 2015. By 2025, it is planned to increase the export of dairy products to USD 3,120.7 million, and by 2030 - to USD 3,959 million. At the same time, Belarus is really making a lot of efforts to diversify export supplies. The share of deliveries of dairy products to Russia in 2015 was 96.6% (taking into account the embargo introduced in 2014, this is an understandable figure), in 2018 the share dropped to 78%, and in 2019 it was 87.7%. This is a significant volume of supplies, which depends on the key sales market [4].

Already in 2020, Belarus has increased the production and sale of almost all types of dairy products. According to the State Statistical Committee of the Republic of Belarus, the volume of production of whole milk products in terms of milk increased by 5.4% to nearly 2.1 million tons. The production of powdered milk and cream increased by 5.7% to 158.6 thousand tons, butter - by 3.4% to 119.5 thousand tons, cheeses - by 11.1% to 269.2 thousand tons, condensed milk and cream - by 20.6% to 78.4 thousand tons, ice cream - by 5.5% to 35.1 thousand tons. The only type of dairy products, the production of which has decreased, is low-fat dairy products. The volume of its production decreased by 26.9% to 66.3 thousand tons in terms of skim milk. Stocks of dairy products have grown, however, there is less than the average monthly production volume in warehouses for all types. Stocks of cheese amounted to 8.6 thousand tons or 38.2% of the average monthly production, dried milk and cream - 4.9 thousand tons or 40.6%, butter - 4.8 thousand tons or 48%, condensed milk and cream - 2.4 thousand tons or 46.9% [5, p. 24].

If we consider meat products, then, despite the pandemic, exports in 2020 were increased by 11%, and the geography of supplies expanded.

The Republic of Belarus exports 400 thousand tons of meat products to 24 countries of the world. In 2020, the export of meat products amounted to USD 973 million. The largest export volumes are poultry meat (190 thousand tons), beef meat (150 thousand tons). In addition, the export of finished sausages increased significantly - 57 thousand tons (an increase of 21%).

The three leaders in the export of Belarusian meat in 2020 are Russia, Kazakhstan and China. In the segment of meat supplies, Russia occupies 60% of all exported Belarussian meat products. In China, 26 Belarussian enterprises are certified (for poultry and beef). Meat exports doubled and amounted to USD 114 million [6].

Next, we will consider the export of sugar products, since there are four sugar factories in Belarus - two in the Minsk region, one each in Grodno and Brest.

Sugar factories have been modernized to varying degrees, to a greater extent this is the Slutsk sugar refinery. The modernization has increased the efficiency of the enterprises. Losses of sucrose in production are reduced by 50%, the content of sucrose in molasses (a by-product of sugar production) is reduced by 24%. In 2019, the sugar yield was 14.27% (in 2018 - 14.14%). Sugar losses in production averaged 0.37% of the beet weight (in 2018 - 0.53%), the degree of sucrose extraction was increased to 84.41% of the beet weight (in 2018 - 83.33%), reduced energy consumption [7].

But, after the modernization, the enterprises turned out to be a little on credit. Additional pressure came from the unfavorable external environment. The main problem of the decline in the efficiency of the sugar industry was the global overproduction of sugar and its surplus in the market of the Eurasian economic union. Russia and Kazakhstan have significantly strengthened their positions in the sugar market.

Taking into account weather conditions, the sugar beet harvest in 2020 turned out to be 20% lower than the level of 2019, the gross harvest is at the level of just over 4 million tons. Of the crop, the factories produced about 530 thousand tons of sugar (78% to the level of 2019). At the same time, the grown crop is enough

to provide the domestic market in full, the surplus is sold for export. We are not talking about excess stocks today, they, taking into account the beginning of the processing season, are within the normative values.

During the COVID-19 pandemic, the sugar market was influenced by two oppositely directed trends, on the one hand, sugar consumption in the HoReCa segment decreased, which is associated with restrictions on the work of restaurants and cafes, and on the other hand, in conditions of self-isolation, people became larger doing home-made baking. So, according to international experts, the first and second waves of the COVID-19 pandemic did not significantly affect sugar consumption.

In 2020, sugar factories of the Republic of Belarus shipped 361 thousand tons of sugar to the external market in the amount of US $ 112 million. This was facilitated by the diversification of the external market. If in 2019 73.3% of export supplies of sugar accounted for Russia, then in 2020 - already at the level of 39.6% [7].

For the first time in the history of Belarusian sugar factories, in 2020 the Belgospischeprom concern was allocated a quota for sugar supplies to China in the amount of 20 thousand tons, which were successfully shipped. Now there is a discussion on the supply of at least another 10 thousand tons.

In 2020, Belarusian producers managed to enter the African market and supply 8.3 thousand tons worth USD 2.5 million to countries that do not have their own sugar production facilities. These are Guinea, Niger, Benin, Ghana, Djibouti, Somalia. These markets are high margin.

At the same time, the main buyers of Belarusian sugar are the countries of the Commonwealth of Independent States. In 2020, 315.7 thousand tons of sugar were supplied there for a total of USD 98.1 million, including 143.9 thousand tons for 44.6 million US dollars to Russia.

Flour supplies for export in 2020 increased by 68.2%, to USD 9.7 million, casein - by 46.2%, to USD 10.9 million, rapeseed oil - by 19%, to USD 243.9 million, gelatin - by 9.5%, to USD 8.9 million, sugar - by 37.7%, to USD 152 million, oilcakes (soy and other obtained in the manufacture of vegetable oils) - by 38 %, to USD 190.4 million dollars, chocolate and products containing cocoa - by 3.7%, to USD 80.2 million.

Speaking about crop products, the Ministry of agriculture and food of the Republic of Belarus especially emphasizes fresh vegetables, they constitute the bulk of exports - more than 44%. In second place are fruits and berries, in third place are potatoes. Potatoes account for only 7.7% of the total export of crop products.

The geography of export of crop products in 2020 includes 39 countries of the world. The largest supplies traditionally fall on the countries of the Commonwealth of Independent States - the Russian Federation, Ukraine, Moldova, Kazakhstan, and the countries of the European union - Germany, Lithuania, Poland, France.

China, Russia and Lithuania have become the main importers of Belarusian flax fiber in recent years.

The current difficult conditions in the world, namely the COVID-19 pandemic, negatively affect the development of the export potential of the Republic of Belarus. Export chains are broken, and the opening of new markets requires an intensive negotiation process and personal participation, and this mechanism is disrupted due to restrictions on movement. Nevertheless, in 2020, the export rate was maintained. During this period, Belarus sold products by USD 250 million more compared to 2019.

Belarusian food industry enterprises continue to develop and introduce technologies for the production of new types of products, including functional, therapeutic and prophylactic ones, and increase the production of semi-finished products of a high degree of readiness in aseptic packaging. At the same time, special attention, as before, is paid to improving the quality of manufactured goods. In particular, we are talking about their compliance with international standards. Manufacturers strive to conquer the foreign market and satisfy the demands and needs of the consumer as much as possible by developing quality control systems for their products.

Entering the foreign market, domestic producers are beginning to take food safety issues more seriously. This is due not only to the requirements of foreign partners and consumers, but also to the relevant regulatory provisions of foreign legislation regulating the access of foreign goods to the market. But when delivering abroad, in addition to the reputation of an individual enterprise, the image of the entire country is often at stake.

Thus, there are a number of problems in the development of export of products of food industry enterprises of the Republic of Belarus, namely:

- the lack of funds from enterprises for the modernization and renewal of production facilities, investment in promising export projects;
- the main export flow falls on Russia, insignificant - to the countries of the Commonwealth of Independent States and, quite a small amount of products is supplied to other countries;
- the slow modernization of technologies;
- the lack of the process of forming transnational corporations. In the modern world, it is more profitable to compete with major players. Therefore, it is necessary to set up with the participation of Belarusian enterprises, powerful international transnational corporations which are capable of influencing the markets for raw materials, selling finished products, joining global distribution networks, while defending national interests. Integration

of private companies in Kazakhstan and Russia with ours, controlled by the state, can be significantly hampered by differences in forms of ownership, management methods and methods of financing. In such a situation, it will not be easy to find new sales markets for food industry enterprises products of the Republic of Belarus.

The analysis showed that the problems of exporting products of food industry enterprises of the Republic of Belarus largely depend on the international integration processes that are taking place in this global economic space, especially in today's conditions of the rapid spread of the COVID-19 pandemic. The Eurasian economic union significantly facilitates the export of Belarus to its member countries, mainly to Russia and Kazakhstan, while there are still unsolvable problems with other countries.

REFERENCES

1. Pishchevaya promyshlennost' Respubliki Belarus' [Electronic resource]. – Mode of access: https://president.gov.by/ru/belarus/economics/osnovnye-otrasli/promyshlennost/pishhevaya. – Date of access: 2021.04.09.
2. Vneshnetorgovaya deyatel'nost' [Electronic resource]. – Mode of access: https://mfa.gov.by/trade. – Date of access: 2021.04.09.
3. Perspektivy eksporta belorusskoy produktsii [Electronic resource]. – Mode of access: https://www.belarus.by/ru/business/. – Date of access: 2021.04.09.
4. Ofitsial'naya statistika rezul'tatov vneshney torgovli [Electronic resource]. – Mode of access: https://www.belstat.gov.by/ofitsialnaya-statistika/realny-sector-ekonomiki/vneshnyaya-torgovlya/. – Date of access: 2021.04.09.
5. Promyshlennost' Respubliki Belarus': statisticheskiy sbornik. – Minsk: Natsional'nyy statisticheskiy komitet Respubliki Belarus', 2020. – 52 p.
6. Eksport myasnoy produktsii [Electronic resource]. – Mode of access: https://sputnik.by/economy/20210324/1047210173/Belarus-v-proshlom-godu-eksportirovala-myasnoy-produktsii-na-973-mln-dollarov.html. – Date of access: 2021.04.09.
7. Sakharnyye zavody [Electronic resource]. – Mode of access: http://www.government.by/ru/content/9680. – Date of access: 2021.04.09.

Economics

UDC 339.138

INDICATORS OF ASSESSING THE EFFECTIVENESS OF ONLINE VIDEO ADVERTISING

A. MALEI, T. SERADA
Polotsk State University, Belarus

Effectiveness of online video advertisement is considered in the article. Based on various sources, authorial system of indicators of effective performance is composed.

Introduction. The video advertising market is growing and evolving. According to recent studies, the growth of investment in video advertising outpaces the overall dynamics of investment in online promotion. It is important to assess whether the target audience has been reached, and to what extent the video has interested users. All of these points to the importance and necessity of timely, complete and accurate assessment of online video advertising effectiveness. Therefore, it is important to study indicators and methods of assessing the effectiveness of online video advertising.

Task. Determine key indicators and methods to assess the effectiveness of online video advertisement.

Methods of research. General logical, theoretical and empirical methods.

The main part. To evaluate the effectiveness of online video advertising and predict or adjust the next steps of an advertising campaign, it is crucial to take the main indicators of online video effectiveness into consideration. Based on various sources, we have made a table dividing indicators into groups (Table 1) [2-5].

Table 1. – Suggested system of indicators of assessing of online video advertising effectiveness

Indicator Group	Indicator	Definition
Primary		
Media indicators	Reach	The number of unique users who have seen the video.
	Views	The total number of times the video has been viewed.
	Impressions	The number of times the video appears on the user's page.
	Clicks	The number of clicks on the elements of the video advertisement which redirect the user to an external resource.
	CTR (Click-through rate)	The ratio of the number of clicks on an advertisement to the number of times it is shown to the audience. CTR = number of clicks / number of impressions * 100%.
	VTR (View-through rate)	The percentage ratio of the number of views to the number of times the video was viewed. VTR = number of views / number of impressions * 100%
	Video quartile	Percentage of video views. There are 4 indicators: the percentage of one quarter of the video (25%), half of the video (50%), three quarters of the video (75%), watching the video to the end (100%).
	Engagement	Aggregate of all elements of video interaction: reposts, likes, comments, saves.
	Conversion	A desirable action performed by the viewer.
Targeted		
Marketing indicators	Brand interest	Criterion evaluated by analyzing the volume of search queries.
	Brand recognition	Criterion evaluated by means of survey advertising materials.
	Brand awareness	
	Number of mentions	Number of mentions is a measure of how often the advertising campaign was mentioned in mass media, on social networks and on specialized websites.
	Tone of mentions	The way the advertising campaign is talked about online: positive or negative.
Business indicators	Payback period	The period from the launch of a video advertisement to the time when the funds spent on its production have paid off.
	ROI (Return of investment)	The ratio of the video expenses to the profit generated by the video.

Source: own elaboration based on the studied literature

According to Table 1, indicators for evaluating the effectiveness of online video advertising are divided into two groups: primary and targeted. Media indicators have developed from Big Data Base technology and are unique to online sphere. They are accommodated based on online users' actions and, therefore, considered primary. Targeted indicators are accumulated based on primary indicators and are aimed at evaluating specific goals of a marketing campaign and, therefore, online video advertisement. Marketing indicators are aimed at evaluating brand loyalty developed by video advertising. Business indicators show economic effectiveness of video advertising through evaluating revenues and expenses.

Many online advertising platforms, such as social networks and contextual advertising services, have built-in analytics where you can track most of the media indicators. Marketing indicators can be measured using automated tools, like "Brand Lift". "How users perceived a video ad is tracked by "Brand Lift" in the following way: along with the launch of the commercial a survey of the audience who watched it and the audience that did not see it is conducted" [4]. Business indicators involve a longer process of analytics, including interaction between advertising agents and a company's sales department.

Conclusion. As a result of this research, a system of indicators of assessing the effectiveness of online video advertising has been developed. Three groups of indicators (media, marketing and business indicators) have been divided into primary and targeted. Primary indicators are accommodated based on online users' actions. These are media indicators. Targeted indicators are aimed at evaluating specific goals of a marketing campaign: brand loyalty (marketing indicators) and economic effectiveness (business indicators). Also, examples of tools assessing these indicators have been studied in the article.

REFERENCES

1. Подробный гид по видеорекламе [Электронный ресурс] // ООО «Internet Masters» – Москва, 27.01.2009. – Режим доступа: https://medianation.ru/blog/youtube/podrobnyy-gid-po-videoreklame/. – Дата доступа: 20.02.2021.
2. Video Marketing Statistics 2021 [Электронный ресурс] // Great Britain, 14.01.2011. – Mode of access: https://www.wyzowl.com/video-marketing-statistics/. – Date of access: 24.02.2021.
3. Как оценить эффективность видеорекламы [Электронный ресурс] // Лимассол, 06.02.2014. – Режим доступа: https://searchengines.guru/ru/articles/2023126. – Дата доступа: 24.02.2021.
4. Как оценить эффективность рекламного видеоролика [Электронный ресурс] // Москва, 24.08.2013. – Режим доступа: https://videozayac.ru/blog/effektivnost-videoreklamy/. – Дата доступа: 24.02.2021.

Economics

UDC 658.78.011.1

THE WAREHOUSE MANAGEMENT OF "VITEBSK CARPETS"

E. ROMASHKO, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

The article presents the materials of the analysis of the warehouse management system of "OAO Vitebsk Carpets", which is related to the enterprises of the light industry of the Republic of Belarus; the detailed description of the warehouse staff the enterprise is given and the job functions of some employees are presented; identified the main problems that decrease the quality of warehouse management of "Vitebsk Carpets".

The analysis of the warehouse management system plays an important role in the activities of an enterprise, as the warehouse is an important material and technical base of an enterprise. It provides the production with the necessary raw materials and materials for a rhythmic and uninterrupted production process and ensures a high level of customer service. Forehanded analysis, identification of shortcomings and their elimination in the warehouse management system will help to increase the efficiency and reliability of the functioning of not only the warehouse, but the enterprise itself as a whole.

"Vitebsk Carpets" is one of the largest enterprises of the light industry of the Republic of Belarus, for which the warehouse industry plays an important role in its activities.

The warehouse of "Vitebsk Carpets" includes the following warehouses:

- central warehouse for finished products;
- regional warehouse for finished products;
- central warehouse of raw materials;
- central material warehouse and warehouse of chemicals [1].

Warehouses on the territory of the enterprise are located near the factory of tufted carpets, for quick supply of raw materials for the manufacture of products and their delivery to the central warehouse of finished products. They are conveniently located near the railway, along the routes of all transport.

Warehouses of raw materials and materials are used to ensure the continuity of the production process.

Warehouses of finished products are important components of supply chain management, since all cargo flows of new (finished) goods pass through them, which are intended to be subsequently delivered to the market. A feature of the finished goods warehouse is that this warehouse does not serve for storing goods, the storage period for them should not exceed 1-3 days.

Finished goods warehouses are subordinate to the marketing and sales department, the raw material warehouse and material warehouse are subordinate to the material and technical supply department.

Table 1 shows the staff of the warehouse of "Vitebsk Carpets".

Table 1. – The staff of the warehouse of "OAO Vitebsk Carpets"

Category	Number, people	Specific weight,%
1	2	3
Central warehouse for raw materials		
Head of the central warehouse of raw materials	1	0.93
Storekeeper	4	3.70
Electronic computer operator	1	0.93
Commodity specialist	1	0.93
Loader	4	3.70
Forklift driver	2	1.85
Central material warehouse and chemical warehouse		
Head of the central material warehouse and chemical warehouse	1	0.93
Storekeeper	3	2.78
Electronic computer operator	1	0.93
Commodity specialist	1	0.93
Loader	3	2.78
Forklift driver	2	1.85

The ending of table 1

1	2	3
Central warehouse for finished products		
Head of the central warehouse for finished products	1	0.93
Storekeeper	24	22.22
Electronic computer operator	6	5.56
Commodity specialist in the stock	1	0.93
Loader	38	35.19
Forklift driver	4	3.70
Regional warehouse for finished products		
Head of the regional warehouse for finished products	1	0,93
Storekeeper	2	1,85
Electronic computer operator	1	0.93
Commodity specialist	1	0.93
Loader	4	3.70
Forklift driver	1	0.93
Total employees:	108	100.00
of them:		
managers	4	3.70
specialists	37	34.26
technical performers	9	8.33
workers	58	53.70

Note: authoring based on source [1]

Table 1 shows that the warehouse staff of "Vitebsk Carpets" includes a warehouse manager, a commodity specialist, a computer operator, a storekeeper, a loader.

All warehouses are fully staffed with workers, each fulfilling his duties, which are spelled out in the job descriptions. But, the enterprise does not have a general warehouse management system, since, as already written above, finished product warehouses are subordinate to the marketing and sales department, and warehouses of raw materials, materials and chemicals are subordinate to the material and technical supply department.

The head of the warehouse manages the work of the warehouse for receiving, storing and dispensing, ensures the safety of finished products in warehouses for finished products, and raw materials, materials and chemicals in appropriate warehouses. At all warehouses of the enterprise, each warehouse manager draws up the established reporting, monitors the availability and serviceability of fire-fighting equipment, the condition of premises, equipment and inventory in the warehouse, ensures their timely repair, and also organizes loading and unloading operations in the warehouse in compliance with labour protection rules, safety, industrial sanitation and fire protection, collection, storage and timely return of loading props to suppliers.

The commodity specialists of the central and regional warehouses for finished products perform the following functions:

– the determination of requirements for goods, as well as the compliance of their quality with standards, technical conditions, concluded contracts and other regulatory documents;

– the control over the receipt of goods;

– the taking part in the preparation of data for the preparation of claims for the supply of low-quality goods and responses to customer claims;

– the control over the availability of goods in the warehouse;

– the communication with suppliers and consumers, paperwork for shipment and receipt of goods in accordance with the approved plans.

Functions of the commodity specialist of the central material warehouse and chemical warehouse:

– the determination of requirements for raw materials and material resources, compliance of the quality of these resources with standards, technical specifications, contracts and other regulatory documents;

– the determination of the compliance of accompanying documents with regulatory requirements;

– the maintenance of current reporting of operational and commodity accounting of the receipt and sale of resources;

– the study and analysis of the organization's activities for the reporting periods within its area of responsibility, the reasons for the formation of excessive excess and illiquid material resources.

Job functions of storekeepers of central and regional warehouses of finished products:

– the storage of finished products on racks, as free spaces appear;
– the compliance with the requirements of the instruction on labor protection;
– the control over the storage of finished carpets according to articles, patterns, colors, sizes in the warehouse;
– the formation and participation in the selection of carpets at the request of buyers;
– the reading the requisites of carpet products by a scanner and entering the requisites read by the loader into the invoice;
– the checking and calculating the invoice and data from the scanner for the released products with computer operators.

Storekeepers in warehouses of raw materials, materials and chemicals perform the following functions:

– the implementation of acceptance, accounting of raw materials, materials and chemicals; checking with the submitted accompanying documents;
– the ensuring the safety of commodity units available in the warehouse;
– the keeping records of internal movements of valuables in the warehouse, reporting, observing the rules for the delivery and execution of receipts and receipts and other financial documents;
– the control of the availability, serviceability of the existing fire safety means, the technical condition of the warehouse and production equipment, if necessary, make repairs;
– the implementation of the issuance, acceptance of inventory items, the performance of loading and unloading operations, observing industrial safety techniques, sanitary standards, rules of internal labor protection, fire safety.

The duties of computer operators in different warehouses are similar and include:

– the monitoring the operation of electronic computers;
– the set of text materials using a text editor on electronic computers (personal electronic computers);
– the implementation of recording, reading and copying of information from one medium to another;
– the information output to print.

Loaders in warehouses perform such functions as:

– the loading, unloading and intra-warehouse processing of goods;
– the securing and sheltering goods in warehouses and vehicles;
– the carrying boards and ladders;
– the rolling of wagons in the process of work.

After analysing the functions of warehouse workers, a flaw was found. In finished goods warehouses, the storekeeper places finished goods on the racks as they are released. This can lead to an increase in the time for collecting the order, since products that are in high demand can be placed on racks away from the loading point.

Further, the degree of equipment of the warehouses of "Vitebsk Carpets" was studied.

At the central warehouse of raw materials, the main types of raw materials come on pallets, respectively, storage in the warehouse - in rows. Therefore, there is no technological equipment in this warehouse. Unloading and movement of raw materials is carried out using electric forklifts "Jungheinrich ETV-C16 SP GE" and a forklift "Komatsu".

In warehouses of materials and chemicals, various types of materials and chemicals are in a liquid state, so these resources are stored in tanks, containers and cisterns. There is also a chalk storage rack in the material warehouse. These warehouses use lifting and transport equipment such as an electric chain hoist and a lifting device.

At the central and regional warehouses of finished products, goods are stored in rolls on racks 5 m high and 3 m wide, and 2 to 4 m deep, racks are located in 3 floors in the central warehouse and in 2 floors in the regional warehouse. One rack holds up to 100 carpets.

Finished products are transported using various carts, forklift trucks, electric forklift trucks and electric pallet trucks.

The work of a warehouse of any enterprise is impossible without high-quality software. In "Vitebsk Carpets" they use the software product "1-C: Enterprise, 7.7".

The software product "1C: Enterprise" is intended for the automation of accounting and management accounting (including payroll and personnel management), economic and organizational activities of the enterprise.

For the warehouse of finished products, accounting is carried out in the program "1C: Trade Management" ("1C: Trade and Warehouse") version 7.7.

This software product is a component of "Operational accounting" of the "1C: Enterprise" system. The component "Operational accounting" is designed to account for the availability and movement of material and monetary funds. It can be used both autonomously and in conjunction with other 1C: Enterprise components.

At the warehouse of finished products of “Vitebsk Carpets”, barcodes and scanners are used to read them.

All finished products are packed in plastic wrap with a barcode on it. The shop workers send the products (scan the barcodes) through the conveyor belt to the finished product warehouse on the waybill (from the shop to the conveyor belt).

Further, from the conveyor belt to the finished product warehouse, the storekeeper arrives (scans the barcodes) products according to the movement document (from the conveyor belt to the finished product warehouse), registers the document in the automated accounting system.

As a result of the study and analysis of the warehouse management system of "Vitebsk Carpets", a number of problems were identified, namely:

- the absence of the unified warehouse management system at the enterprise;
- the irrational placement of finished products for storage;
- the absence of the automation system for many warehouse processes;
- the outdated warehouse equipment.

1. The absence of the unified warehouse management system at "Vitebsk Carpets". To improve the efficiency of the company's warehouses, a unified warehouse management system is needed. This problem is caused by the fact that the central and regional warehouses of finished products are subordinate to the marketing and sales department, and the warehouses of raw materials, materials and chemicals are subordinate to the procurement department, as a result of which there is no overall coordination of the warehouses.

2. The irrational placement of finished products for storage. This problem lies in the fact that in the warehouse, finished products are placed on the racks as they are released. That is, products that are in great demand can be put at the end of the warehouse, and those that are less demanded by consumers can lie for a long time on racks near the loading area, thereby increasing the number of intra-warehouse movements and the time for order collection. Rational placement of goods will speed up the process of placing orders by reducing the number of movements of storekeepers. Accordingly, an indicator such as the number of processed orders per unit of time will increase, and the amount of time spent on processing consumer orders in general will decrease, which in turn will lead to an increase in the level and quality of customer service.

3. The absence of the automation system in the warehouses of "Vitebsk Carpets". All processes at the warehouses of "Vitebsk Carpets" are carried out practically by hand. This leads to an increase in labor costs for employees (wages and deductions), to errors associated with the human factor, to a low speed of performance of warehouse operations and processes. Also, the warehouses of "Vitebsk Carpets" do not have a corresponding software product that will help in automating warehouse accounting to reduce the time for working with documentation.

4. The outdated warehouse equipment. All warehouses of "Vitebsk Carpets" have technological and handling equipment, the service life of which exceeds the standard. This is due to the fact that the company does not have free working capital to upgrade warehouse equipment. Such a fact can lead to a disruption of the uninterrupted operation of warehouses, which will negatively affect the efficiency of the functioning of the warehouse economy and the entire enterprise as a whole.

From the analysis of the warehouse management system of "Vitebsk Carpets" it is clear that the identified problems will adversely affect not only the activities of its warehouse, but also the enterprise as a whole, therefore, their urgent solution is required. As a result of their solution, the efficiency of the functioning of the warehouse and the entire enterprise will undoubtedly increase, which will lead to an increase in competitiveness and an increase in the income of "Vitebsk Carpets".

REFERENCES

1. Ofitsial'nyy sayt OAO «Vitebskiye kovry» [Electronic resource]. – Mode of access: http://vitcarpet.com. – Date of access: 2021.04.09.

Economics

UDC 330.341.11

PROBLEMS OF THE ANALYSIS OF SUPPLY CHAINS INNOVATIVE PROCESSES IN ORGANIZATIONS OF THE REPUBLIC OF BELARUS

T. PALCHEVSKAYA
Polotsk State University, Belarus

The article discusses those economic activities for which information on innovations is collected in the Republic of Belarus, as well as organizations with economic activities for which information is not available, but which are nevertheless part of the supply chain. The reasons for the lack of information on the innovative activity of supply chains have been identified.

Nowadays, with the emergence of barriers to international trade, new security requirements and travel bans due to the COVID-19 pandemic, the issues of innovative development of supply chains are becoming increasingly important. Organizations are forced to rebuild business processes, find new suppliers and customers, new ways of delivering raw materials and finished products. Due to the reduction in supplies from China, many manufacturing enterprises around the world are facing raw material shortages. All of this has required organizations to build new supply chains, as well as find ways to improve the sustainability of existing ones. The number of software products developed and introduced into the activities of organizations has also increased due to the transition to a remote mode of operation. The introduction of innovations is becoming a prerequisite for the stable operation of organizations. However, it should be noted that there is insufficient information to assess the effectiveness of the innovation process in supply chains as a whole.

Traditionally, in the structure of supply chains, a focus company (which most often belongs to a manufacturing industry), suppliers and consumers of various levels, as well as intermediary organizations providing services for the transportation, forwarding and warehousing of goods are distinguished [1, p.13].

The statistical bulletin "On Scientific and Innovative Activities in the Republic of Belarus", published annually by the National Statistical Committee, provides the main indicators of organizations that have carried out research and development. The bulletin contains data on organizations whose main economic activities are activity in the mining industry; manufacturing industry; supply of electricity, gas, steam, hot water and air conditioning; water supply; collection, processing and disposal of waste, activities for the elimination of pollution, activities in the field of telecommunications; computer programming; consulting and other related services; activities in the field of information services, except for the activities of information agencies [2, p.2].

However, one can notice the lack of information about innovative activities in organizations that produce primary raw materials, namely, agricultural, forestry and fishery enterprises, as well as trade, transport, warehouse and other intermediary organizations. At the same time, the data on the innovative activity of organizations in these branches are absent not only in the statistical bulletin "On Scientific and Innovative Activity in the Republic of Belarus", but also in specialized bulletins on these industries: "Agriculture of the Republic of Belarus", "Environmental protection in the Republic of Belarus", "Transport in the Republic of Belarus" and "Retail and Wholesale Trade, Public Catering in the Republic of Belarus". The availability of information on the innovative activity of organizations in the context of the links in the supply chain is shown in Figure 1.

Thus, the analysis of innovation processes in supply chains is difficult even at the first stages of collection of information, since national statistical reporting is carried out mainly on manufacturing organizations, and not enough attention is paid to other links in the supply chain. Information on the innovative activity of these links can be obtained only indirectly by analyzing the general economic indicators of income, costs and labor productivity, as well as those specific to each industry - the size of cultivated areas, the availability of vehicles, freight turnover, retail and wholesale turnover, the size of stocks, etc.

This problem can be caused by a number of reasons.

First, the focus of organizations on technological innovation. At the same time, intermediary and trade organizations do not have the opportunity to implement them. The innovative activities of these organizations are mainly aimed at organizational and marketing innovations, to a lesser extent - process innovations, since these organizations do not produce goods by themselves.

However, despite the difficulty of introducing innovations in primary mining industries, trading and intermediary organizations, such an opportunity still exists. For example, in the collection "Belarus: Science, Technology,

Innovation", in the top 10 developments of scientific and technical programs in 2016–2019 there is a new variety of potatoes "Vodar" [3, p.10]. However, this potato variety was developed by the RUE "Scientific and Production Center of the National Academy of Sciences of Belarus for Potato and Horticulture", and not by an agricultural organization.

In trade organizations the introduction of self-service checkouts is spreading, which makes it possible to automate the process of purchasing goods, increase the throughput of checkout points and reduce personnel costs [4]. These self-service checkouts are a part of technological innovations, namely, process innovations.

	Suppliers →	Manufacturers →	Transport and warehouse intermediaries →	Consumers
Information is available	Organizations of mining industry	Organizations of manufacturing industry	-	-
Missing information	Agriculture, forestry and fishing industry organizations	-	Transport and freight forwarding organizations, warehouses, 3PL- and 4PL-providers	Wholesale and retail intermediaries

Fig. 1. – Availability of information on the innovative activity of organizations in the Republic of Belarus in the context of the supply chain.

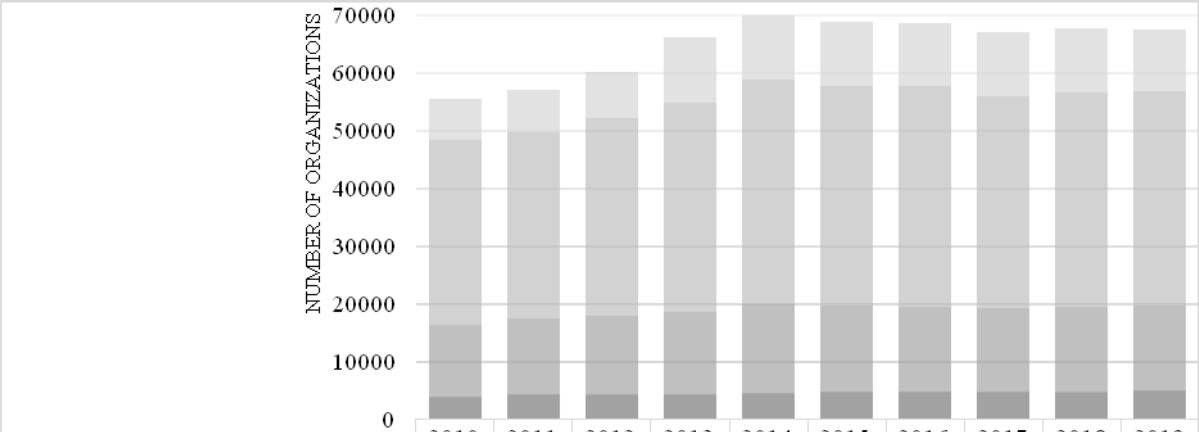
Secondly, organizations that actively innovate are usually large in size and have significant capital. Many of these organizations may have their own branded stores selling innovative products, making it even more difficult to collect information about the innovation process in trade. This is especially true for organizations in the engineering industry.

Thirdly, it should be noted that statistical data is collected according to the state statistical reporting form 1-nt (innovation) "Report on the Organization's Innovation Activity". However, the list of respondents who must provide this form, doesn't include organizations with such main types of economic activity as "transport activities, warehousing" and "wholesale and retail activities".

Thus, in the Republic of Belarus there are certain difficulties in accounting and analysis of innovations in the primary mining, intermediary and trade organizations, associated with the complexity of the development and implementation of innovations in these industries, the need for the cost of monetary and human resources, which may not be available from these organizations, and also the specific features of their work.

Figure 2 shows the dynamics of the number of organizations in the supply chains of the Republic of Belarus in 2011-2019, compiled according to the data of the National Statistical Committee of the Republic of Belarus.

From Figure 2, we can conclude that trade, transport and warehouse organizations accounted for about 71% of organizations in the supply chains of the Republic of Belarus during the entire analyzed period. Enterprises producing primary raw materials account for about 7% and manufacturing enterprises amount to 22% of organizations. Thus, the statistical bulletin "On Scientific and Innovative Activities in the Republic of Belarus" provides information on innovative activities of only 22% of organizations that are part of the supply chains of the Republic of Belarus.



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
transport, storage, postal and courier activities	7164	7 339	8 092	11 422	12 756	10 994	10 881	11 022	10 988	10 624
wholesale and retail trade	32074	32 417	34 237	36 127	39 089	38 093	38 104	36 876	37 172	37 137
manufacturing industry	12571	13 203	13746	14418	15433	15 198	14 923	14 549	14 732	14 946
mining industry	48	52	52	67	70	48	62	48	47	42
agriculture, forestry and fisheries	3698	4112	4067	4128	4347	4 477	4 583	4 578	4 682	4 780

Fig. 2. – Dynamics of the number of organizations in the supply chains of the Republic of Belarus in 2011-2019 [5].

Thus, as a result of the analysis of innovation processes in the supply chains of organizations of the Republic of Belarus, it can be concluded that there is insufficient information about the innovative activity of organizations that make up most of the supply chains of the country. There is no statistical information on the innovative activities of organizations producing primary raw materials, as well as trade, transport, warehouse and other intermediary organizations. This situation may be due to the focus of organizations on the implementation of technological innovations, the complexity of the analysis of the innovative activity of large enterprises with their own transport, warehouses and company stores, as well as the lack of statistical reporting for organizations in which the above-mentioned activities are the primary ones.

REFERENCES

1. Смирнова Е.А. Управление цепями поставок: Учебное пособие. – СПб.: Изд-во СПбГУЭФ, 2009. – 120 с.
2. Статистический бюллетень «О научной и инновационной деятельности в Республике Беларусь в 2019 году». – Минск, Национальный статистический комитет Республики Беларусь, 2020. – 115 с.
3. Беларусь: наука, технологии, инновации / под ред. А. Г. Шумилина. – Минск: ГУ «БелИСА», 2020. – 40 с.
4. Касса самообслуживания / Компания «Туссон». – Режим доступа: https://retail.by/catalog/trading_cash/self_checkout/the_self_service_checkout/. – Дата доступа: 15.04.2021.
5. Количество активных предприятий по видам экономической деятельности / Национальный статистический комитет Республики Беларусь. – Режим доступа: https://www.belstat.gov.by/ofitsialnaya-statistika/realny-sector-ekonomiki/biznes-demografiya/godovye-dannye/. – Дата доступа: 15.03.2021.

UDC 658.8

IMPACT OF THE COVID-19 PANDEMIC ON THE MERCHANDISING INDUSTRY

S. KUKHARENKO, E. VORONKO
Polotsk State University, Belarus

The pandemic has become a serious challenge for many areas of life, including merchandising. The impact that it has had on the traditional ways of providing goods to customers is difficult to overestimate. In this article, we will analyze the difficulties of this period and the steps to overcome them

Merchandising is a polysemantic word. Its meaning can vary depending on the dictionary we use. American Marketing Association has defined merchandising as "Planning involved in marketing right merchandise, at right place at right time in the right quantities at the right price". This is the basis of merchandising: to help a buyer find a suitable product. According to the method of working with goods, several types of merchandising are distinguished. Each kind has a number of specific features based on how the buyer perceives reality. The main ones are [1]:

– cross merchandising is a direct layout of products in the trading room. An experienced specialist through competent placement of the assortment can help the buyer: facilitate a search and selection of goods;

– visual merchandising is an atmosphere of a store (i. e. a combination of external factors present in the trading room, which have a certain effect on sensory receptors and form the psychological state of a visitor);

– technical merchandising is a set of services for the creation, delivery and installation of advertising materials and sales equipment in various outlets. Promotional materials include all kinds of means of attracting customers, such as lighting panels, promotional posts, banners and much more. Trading equipment for placing goods – racks, shelves, tables and cash-register area equipment. In other words, technical merchandising consists in the installation of equipment, which makes life much easier for shop owners.

The consumers' buying decision is affected by many factors. At the entrance to a store, visitors are in a state of adaptation to it. At first, they are not active and do not make purchases. Their attention is distracted at this moment. It has a low level of concentration and stability. That is why the specialists of the trading hall should strive to reduce the number of irritants that prevent rapid adaptation to new conditions.

While walking around the store, the buyer gradually adapts to it: now he is ready to carry out the planned purchases. This section of the hall is conventionally called the purchase zone. After selecting the necessary products, the buyer hurries to the cash register. At this stage of the buyer's route, such factors of attention as shape, size, color, smell, position, etc. can be manipulated. This stage of the route and part of the trading floor is called the return zone.

In addition to these zones, the retail space itself is also divided into places that customers visit less often, they are called «cold» zones, and places that are visited more often than others, they are called «hot» zones. The task of a merchandising specialist is to ensure that all «cold» zones become «hot» [3].

«Cold» zones are formed because people by nature do not want to change the direction of movement. For example, practice shows that buyers prefer to go in a counterclockwise direction and along the edges. Such behavior of people creates unfavorable conditions for the goods placed in the central part of the trading hall. Therefore, merchandising specialists attract customers with the help of various factors that contribute to changing traffic routes and redistributing the attention of visitors. Another way to overcome the influence of the zone is to place more attractive products in the "cold" zones, and less attractive products in the «hot» zones [2].

Such factors significantly influenced consumer behavior just a few years ago. However, now many of them are not so relevant.

The pandemic caused by the COVID-19 virus has become a serious challenge to the whole world, the consequences of which are still difficult to fully understand and analyze. Experts' opinions are divided. Some researchers say that the consequences of the pandemic will lead to huge changes in the global economy, while others say that the impact will be noticeable, but short-term. The author of this article tends to refer to the first group of people: even now, to some extent, the pandemic has affected all areas of the world economy and trade, and this impact is difficult to describe as only temporary changes. According to research results, many trends emerging as a result of the pandemic will not lose their popularity in the future.

In the face of restrictions on the import and export of goods, closure of borders, suspension of the work of companies, collapse of demand in the tourism sector and in some segments of the retail trade and growth of exchange rates – for any business, as well as for the whole world, the critical task was quick adaption to changes.

Analyzing the experience of those countries that have already been seriously affected by the pandemic – the United States, China, Spain, Italy, Germany and France – analysts at Nielsen, the largest independent company

specializing in market research in the consumer goods industry, identified six stages of changing consumer behavior in the coronavirus outbreak. It turned out that in all countries, people behave approximately the same [4].

At the beginning of the pandemic, people's attention is focused on the topic of health, products for maintaining immunity, and the topic of a healthy lifestyle in general. When the first victims appear, the main focus is on basic necessities (cereals, canned food, meat products, household chemicals and, of course, personal hygiene products). People make purchases for the future, so that, in case of strict quarantine rules, they do not have to leave their homes and go to the shops for food.

Then follow the two most difficult stages. When a country comes close to a serious quarantine, online sales increase: there may be difficulties in the supply chains due to the introduction of various restrictions by the authorities. Some countries have imposed restrictions on the number of products that a buyer can purchase. This is done both to reduce panic purchases and to reduce the number of "resales of goods" at higher prices on the part of speculators [5].

At the fifth stage, when there is a mass infection and quarantine in a country, people go to stores less often, online sales are growing at an explosive pace, and due to a shortage and excessive demand the price for certain categories of goods increase. Based on this, some stores can face the problem of having certain products and goods on the shelves.

The sixth stage is a return to normal life, but with increased concern for health and hygiene, as well as increased interest in online shopping. Many countries are not yet ready for this stage.

Before returning to the life that people have led recently, there is a need to resolve issues related to the provision of goods to the buyer in the context of a pandemic. Physical stores face the challenge of keeping customers safe when making purchases. In order to protect both employees and their visitors, special measures are introduced. They are not mandatory, but following them increases customer loyalty and demand during quarantine. Therefore, it is recommended to:

1) install hygiene racks (including hand sanitizer, disposable gloves, paper towels, and other protective measures);
2) limit the number of customers who are in the store at the same time;
3) stick signs on the floor to indicate the safe distance of buyers;
4) introduce dividers for cash zones;
5) instead of usual doors use of door handles for the forearm, which prevents contamination;
6) provide additional disinfection of all public access areas;
7) monitor the health of the staff.

Another option may be in changing the opening hours of the store to increase, (especially true for Europe, where the working hours are very limited) and thereby distribute the store's traffic. As an example of the use of such a strategy, we can cite Romania, where it was allowed to go out at night due to the need to buy food. It is also necessary to encourage consumers to use self-service cash registers more actively, if they are available.

Despite all the measures that are being taken to ensure that the store continues to operate and attract customers even in crisis conditions, it has been estimated that malls could shrink anywhere from 25%-45% of their square footage over the next 5-10 years, due to COVID-related business pressures and the growing adoption of online shopping [6]. This fact will certainly affect the activities of merchandisers. The main trends of visual merchandising in 2021 related to the pandemic can already be identified [7]:

– modularity of design and design solutions. Easily changeable spaces that can be transformed under changes in the assortment, promo, seasonality, etc. Flexible and moving equipment, which allows you quickly rearrange depending on the tasks and needs. The store of today must be flexible and attuned to an unknown future;

– creating a safe space that includes wide aisles, the possibility of contactless purchases, the placement of disinfectants and protective equipment in the sales halls, and informing the consumer about additional security measures taken by the store to protect its customers;

– organization of remote work of merchandisers, digitalization of merchandising;

– increased demand for automated, robotic shelf control solutions. With the help of such solutions, retail quickly manages the layout and changes the planograms;

– online has become a part of the trading floor – special spaces for storing online orders are being equipped, order pick-up points and terminals are being installed. You can increase customer confidence by making the warehouse transparent. On the one hand, it is an element of the show, on the other hand, it is a demonstration of the openness and sustainable development of the organization;

– during the crisis, retailers began to treat more seriously the issues of improving the efficiency of the checkout area, thus increasing the number of items in the receipt.

Basing on these trends, merchandising will have to be modified to fit the new reality. Below are the main steps of adaptation to the current conditions [8].

1. Analysis of the effectiveness of planograms and zoning schemes of retail premises.
2. Changing planograms and zoning schemes based on current indicators.
3. Organization of high-quality remote work for the merchandising team.

Thus, we can conclude that the most important factor in the work of a merchandiser is the constant monitoring and evaluation of the situation. The situation that many stores found themselves in during the pandemic showed that neither the merchandisers nor other employees were prepared for unforeseen situations, which undoubtedly resulted in the loss of the companies' funds and caused a number of problems for customers. In order to avoid such problems in the future, it is necessary to take into account the experience gained while working in the current conditions.

REFERENCES

1. Мерчендайзинг [Электронный ресурс] – Mode of access: https://levelup-ufa.ru/services/tekhnicheskiy_merchendayzing/. – Date of access: 08.04.2021.
2. Парамонова, Т. Н. Мерчандайзинг [Электронный ресурс] / Т. Н. Парамонова, И. А. Рамазанов. – Mode of access: https://ozon-st.cdn.ngenix.net/multimedia/1015658620.pdf. – Date of access: 08.04.2021.
3. Пигунова, О. В. Мерчандайзинг в розничной торговле [Электронный ресурс] / О. В. Пигунова. – Mode of access: http://lib.i-bteu.by/bitstream/handle/22092014/148/1930.pdf?sequence=4&isAllowed=y. – Date of access: 11.04.2021.
4. Донцова, Е. Бесконтактный ретейл. Какими будут магазины после COVID-19 [Электронный ресурс] / Е. Донцова. – Mode of access: https://snob.ru/entry/193703/. – Date of access: 08.04.2021.
5. Коронавирус и FMCG-тренды в России: новая реальность и новые возможности [Электронный ресурс]. – Mode of access: https://roscongress.org/materials/koronavirus-i-fmcg-trendy-v-rossii-novaya-realnost-i-novye-vozmozhnosti/. – Date of access: 10.04.2021.
6. Stanley, M. Did the Pandemic Change E-commerce Forever [Electronic Resource] / M. Stanley. – Mode of access: https://www.morganstanley.com/ideas/us-internet-post-covid. – Date of access: 10.04.2021.
7. Визуальный мерчандайзинг: тренды–2021 [Электронный ресурс]. – Mode of access: https://produkt.by/news/vizualnyy-merchandayzing-trendy-2021. – Date of access: 10.04.2021.
8. Влияние пандемии на мерчандайзинг [Электронный ресурс]. – Mode of access: https://yandex.by/turbo/retail-loyalty.org/s/news/vliyanie-pandemii-na-merchandayzing/. – Date of access: 10.04.2021.

Economics

UDK 332.1

REGIONAL LOGISTICS SYSTEM: THEORETICAL ASPECT

E. VERETENNIKOVA
Polotsk State University, Belarus

The main elements of the regional logistics system are considered. It was revealed that the main link of the regional logistics system is the population (residents of the regions). The purpose of the development and functioning of the regional logistics system is to satisfy their needs. It is shown that the development and effective functioning of the regional logistics system is influenced by environmental factors, which are proposed to be investigated using SWOT and PESTLE - analysis methods. The use of these methods allows to systematize the strengths, weaknesses, potential opportunities and threats of the regional logistics system, to determine the main competitive positions and the most promising areas of development, to identify those factors of the logistics environment that have the greatest impact, and which should be paid more attention in the study of regional logistics systems.

Currently, the solution of issues related to the development and functioning of logistics systems at the regional level is becoming increasingly important. Despite a significant number of publications on this topic, the regional logistics system (RLS) is still a poorly studied system that does not have a clear formed methodology for its definition and analysis.

Issues on regional logistics systems are studied by foreign and domestic authors such as L.Y. Berezhnaya, N.F. Zhemaldinova, E.V. Erokhina, N.V. Kocherga, S.F. Kugan, V.V. Lukinsky, V.F. Lukinykh, A.L. Nosov, Ya.Yu. Pavlova, I.I. Poleshchuk, T.A. Prokofiev, I.A. Topalova, S.B. Usmanova, O.A. Freidman, E.L. Shishko and others.

In regional logistics, the term "regional logistics system" is defined as a set of subjects of logistics activities interacting through an integrating and coordinating mechanism for planning, organizing and managing regional flows in order to optimize them [1].

Analysis of existing publications on the research topic showed that the elements (backbone factors) of the RLS are:

1) participants of the RLS;

2) flows (resources);

3) logistics infrastructure (LI).

The participants of the RLS include the state, industrial enterprises, small and medium-sized businesses, universities, research centers and institutes, and the population.

High-quality interaction and cooperation of all of the above entities leads to the effective development and operation of the RLS. Enterprises and small and medium-sized businesses involved in the movement of all types of logistics flows need not only to maximize their profits, but also to take into account and calculate the level of their contribution to increasing the economic efficiency of the RLS.

Investigating the participants of the RLS, we came to the conclusion that the main link of the regional logistics system is the population (residents of the regions). The purpose of the development and operation of the RLS is to satisfy their needs.

Resources are available and spent funds, in quantitative terms, indicating the potential of the region. When moving, resources, transforming their energy, turn into a flow [2]. Material, financial, informational and service flows are distinguished as flows. All of them are inextricably linked: without a financial flow there is no material flow, and the material flow itself can become a source of financial flow. These types of flows are inextricably linked with information flows. It should be noted that none of these flows can exist without a person who initiates them, controls them and consumes them himself [3].

Logistic infrastructure, as an element of the regional logistics system, is the technical means of connecting industries serving logistics flows (warehouse and transport infrastructure, wholesale and retail trade, communications (telecommunications, postal and courier activities). These industries move resources from producer to consumer. Their purpose - minimization of costs using the optimal movement (distance, time between delivery points and cargo dimensions) of resources [4]. This is a self-sufficient structure consisting of interacting and interconnected elements, which exists relatively independently and steadily, is constantly developing and improving depending on the interaction with environment [3].

The external market environment in relation to logistics systems in the regions is characterized by a high degree of uncertainty. Therefore, when studying the RLS, special attention should be paid to the influence of environmental factors on the development and effective functioning of the RLS (fig. 1). It is proposed to analyze these factors using SWOT and PESTLE analysis methods.

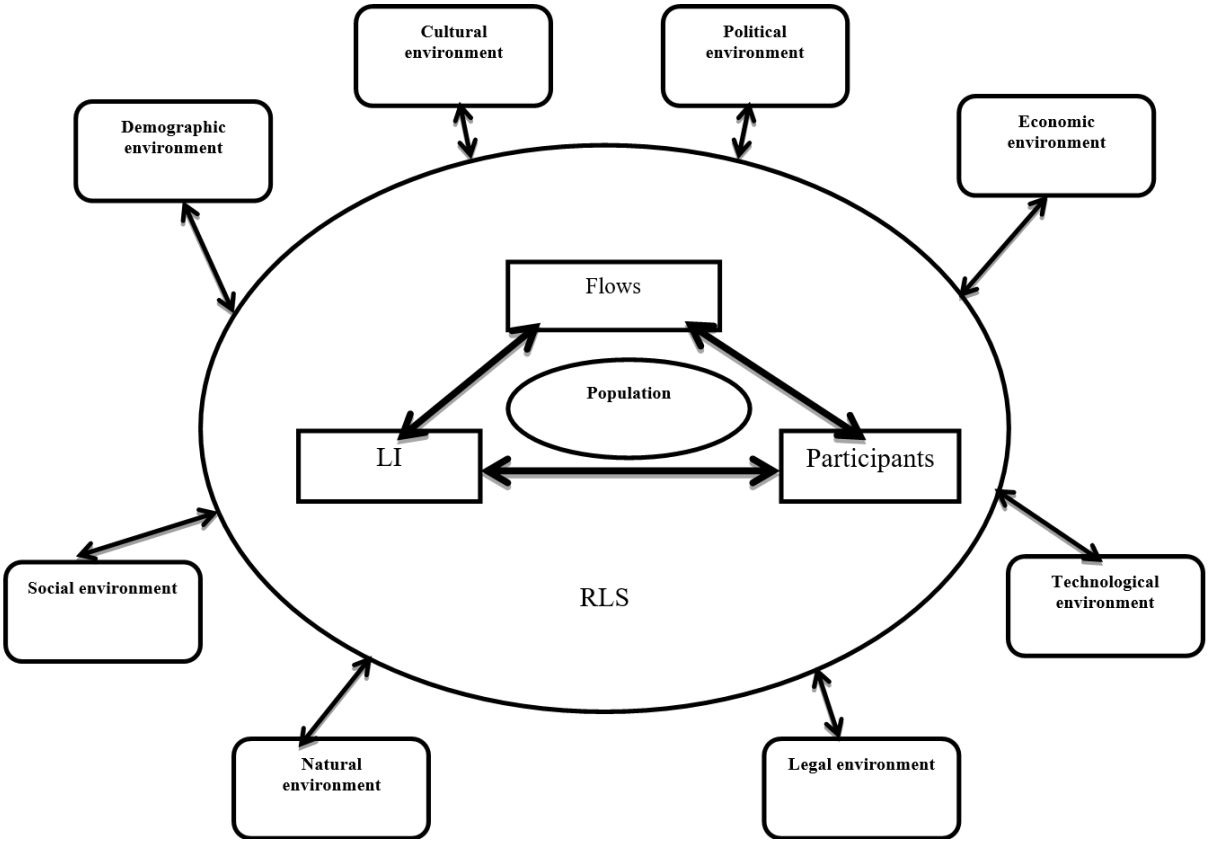


Fig. 1. – The influence of environmental factors on the RLS

Source: own development

SWOT analysis of RLS is a method that identifies the factors of the internal and external environment of the logistics system of the region and divides them into four categories: strengths, weaknesses, opportunities and threats.

Strengths are associated with achievements that make it possible to compete with the regional logistics system in the long term. Weaknesses include real factors that slow down the sustainable development of the RLS in the region. Opportunities are viewed as currently not realizable data, the implementation of which can lead to an increase in the well-being of the RLS. Threats include negative factors affecting the RLS, if their occurrence is not prevented.

Conducting the SWOT analysis of the RLS includes the following steps:

1. Identification of factors of the internal environment (division into strengths and weaknesses);
2. Identification of environmental factors (division into factors that carry opportunities and carry threats);
3. Evaluation (ranking) of all factors in terms of significance;
4. Screening out insignificant and unlikely factors as having no practical significance;
5. Formation of the matrix of SWOT factors;
6. Formation of a cross matrix, including a pairwise comparison of each of the factors with the identification of how strong the RLS is capable of realizing the opportunities that open up before it; the extent to which the strengths of the RLS station allow neutralizing the threats of the external environment; what opportunities provided by the external environment can be used to turn the weaknesses of the RLS into its strengths; how to defend against external threats by strengthening weaknesses.

When forming the cross SWOT matrix, various combinations of environmental factors and internal properties of the RLS are sequentially considered:

– The SO field indicates which strengths need to be exploited to capitalize on opportunities in the external environment;
– The WO field shows the capabilities of the external environment the RLS will be able to overcome the existing weaknesses;
– The ST field shows which forces the RLS must use to eliminate threats;
– The WT field shows which weaknesses must be eliminated in order to try to prevent the impending threat [5].

Thus, based on the SWOT-analysis matrix, a comprehensive assessment of the current state of the RLS is given. Based on the results of the analysis, it is possible to assess whether the RLS has the internal forces and resources in order to realize the existing capabilities and resist external threats.

Currently, the importance of environmental factors is increasing, which leads to the need to take them into account when analyzing and studying the regional logistics system. Therefore, for strategic analysis of the RLS macroenvironment, it is proposed to use an improved version of PEST analysis - PESTLE analysis, which includes legal and environmental factors.

The analysis identifies the most significant political, economic, sociological, technological, legal and environmental factors for the RLS. The composition of the selected factors depends on the socio-economic characteristics of the region and the availability of initial data. Each factor is given an expert assessment of the level of importance for the industry on a scale (3 - high, 2 - moderate, 3 - weak), the degree of influence on the RLS (3 - strong, 2 moderate, 1 - weak, 0 - no influence) and direction of influence (positive or negative). Multiplying the above three expert assessments, a general assessment of the factor is obtained, demonstrating the degree of its significance for the RLS [6]. The result of this analysis is the identification of those factors of the logistic environment that have the greatest impact, and which should be paid more attention to when studying the RLS.

Conclusions. The main elements of the RLS are its participants, flows and logistics infrastructure. The main link in the regional logistics system is the population (residents of the regions). The purpose of the development and operation of the RLS is to meet their needs. The development and effective functioning of the RLS is influenced by environmental factors, which are proposed to be investigated using SWOT and PESTLE-analysis methods. The use of these techniques allows to systematize the strengths, weaknesses, potential opportunities and threats of the RLS, to determine the main competitive positions and the most promising directions for the development of the RLS, to identify those factors of the logistics environment that have the greatest impact, and which should be given more attention in the study of the RLS. Based on these analyzes, a decision is made on the further possible development of the RLS.

REFERENCES

1. Носов, А.Л. "Методология управления развитием инфраструктуры региональной логистики": автореф... дис. канд. экон. наук: 08.00.05 / А.Л. Носов; Санкт-Петербургский государственный инженерно-экономический университет» – Санкт-Петербург, 2007. – 35 с.
2. Павлова, Я.Ю. Региональная логистическая система как методология организации потоковых процессов региона [Электронный ресурс]. – Режим доступа: https://cyberleninka.ru/article/n/regionalnaya-logisticheskaya-sistema-kak-metodologiya-organizatsii-potokovyh-protsessov-regiona. – Дата доступа: 13.04.2021.
3. Носов, А. Л. Инновационное развитие экономики страны должно опираться на региональную логистику / А.Л.Носов // Инновационное развитие экономики. – 2015. - №3 (27). – С. 32-36.
4. Павлова, Я.Ю. Структура региональной логистики /Я.Ю. Павлова // Вестник КрасГАУ. – 2013. - №3. – С.9-15.
5. Фертикова, Е.П. Применение SWOT-анализа для оценки потенциала устойчивого развития Арктических регионов/ Е.П.Фертикова, В.М.Макеев // Материалы Международной научно-практической конференции, посвященной 70-летию Горно-Алтайского государственного университета и 55-летию Алтайского республиканского отделения Всероссийской общественной организации "Русское географическое общество», и проводимой в рамках проекта Эразмус+ "SUNRAISE-Устойчивое природопользование в арктических и высокогорных регионах". – Горно-Алтайск, 2019. – С.200-203.
6. Носов А. Л. Стратегический анализ логистики региона // Научно-методический электронный журнал «Концепт». – 2017. – № 3 (март). – С. 25–32. – URL: http://e-koncept.ru/2017/170053.htm.

UDC 332.855.5

THE ROLE OF INTERNET RESOURCES IN STUDYING THE RENTAL HOUSING MARKET

Y. GUZAREVICH, I. SHANIUKEVICH
Belarusian National Technical University, Minsk, Belarus

The article is devoted to the analysis of the online rental market in the United States, in particular, the web resource Craigslist. Advantages and disadvantages of the Craigslist are compared. Much attention is paid to the importance of online rental listings in rental market scientific research.

The aim of the article is to determine the importance of the online rental market for its analysis and study by researchers using the example of Craigslist [1], which is the most common online source of rental offers in the United States.

The share of American households renting housing is increasing every year, and at the same time it is the online part of the rental market that currently dominates. This is evidenced by the data from the 2017 American Housing Survey, which found Craigslist to be the most popular way to find rental housing in the United States. Craigslist was founded in San Francisco in 1995 by C. Newmark as an online classified advertisements service. As of 2019, Craigslist was the 15th most visited website in the United States and is practically a monopoly in online rental listings space.

The issues of the online rental market in the United States have been discussed in the scientific community from 2006 to the present day, which confirms the topicality of the article. In October 2006, L. Gordon, who is the New York City Council Legislative Investigator, published a report entitled "Brokered Deception: The Hidden Perils of Online Real Estate Ads". Thereafter some researchers began to study the Craigslist rental listings in the context of landlord discrimination and the Fair Housing Act.

However, many scholars and practitioners have taken Craigslist from another angle, using it as the most comprehensive dataset available to study the USA rental market. For example, A. Mallach used Craigslist listings to estimate the median rent in Phoenix in 2010. J. Wegmann and K. Chapple consulted a sample of Craigslist listings to study the prevalence of secondary dwelling units in San Francisco in 2013. Also, J. Feng web-scraped 6 000 Craigslist listings to study Seattle's housing market in 2014 [2].

Despite Craigslist listings have become the primary means of information exchange in the USA rental market, some literary sources question the representativeness of the website's data and consider it as one of the phenomena of the information inequalities.

According to various social surveys among the USA population, the desire to own a home has been and remains strong. However, American households are increasingly turning to the rental market because home ownership is associated with many risks, including the potential loss of wealth from falling real estate values, high costs of relocating and the financial and personal havoc caused by foreclosure.

For most households renting is less of a financial stretch than buying a home. Even in the best of times, homeowners have to come up with a substantial amount of cash to cover the down payment and closing costs, as well as the expense of any immediate repairs. While renters typically have to pay a security deposit plus the last month's rent, the total outlay is usually more modest than the upfront costs of buying. The Federal National Mortgage Association survey reveals many of the reasons some households favor renting over owning. More than half of the renter respondents considered renting a better choice for living within a budget and having less stress. Other common reasons cited for preferring to rent are that it is the best decision in the current economic climate, it allows one to live in a more convenient location, and provides more flexibility in future decisions [3].

Assuming that housing bundles (in terms of the house and neighborhood characteristics) are the same, the cost of renting (the present value of rent payments over a holding period of identical length) simply needs to be subtracted from the user cost of owning to decide which is better. If it is a positive number, owning makes more sense, and if it is a negative number, renting does [4].

Thus, in both the United States and the Republic of Belarus, economic conditions, credit market conditions and housing market conditions clearly have a significant impact on decisions about whether to become a homeowner or rent a home. Now people can easily use the Internet to locate online tools to compare the costs of owning and renting.

However, in the United States there is an acute problem of inequality for certain communities, including inequality in the provision of information. J. Boeing, in one of his academic papers, analyzed 11 million online rental advertisements using a website scraping technique and found that they were spatially concentrated and overrepresented whiter, richer and more educated communities. While Craigslist contains valuable crowdsourced data

to better understand affordability and available rental supply in real-time, it does not evenly represent all market segments [5]. Although the problem of inequality in society is not exacerbated in the Republic of Belarus, using the method of website scraping, following the example of J. Boeing's work, it is possible to develop a methodology for determining the representativeness of regions and districts in certain online sources of the rental market.

One of the advantages of Craigslist is that it increased market efficiency by lowering search costs, thus reducing the average time for units to lease by three weeks [2]. However, this is not the main benefit for researchers, but the fact that it is the most comprehensive data set currently available to examine the USA rental housing market.

Many local governments of the USA face the challenge of addressing the shortage of affordable housing. Despite the importance of the USA rental housing market – particularly in the face of a critical shortage of affordable housing in many cities – there are no comprehensive data sources capturing its full scope. Most data used by housing planners comes from two sources. The first source is associations of apartment managers and brokers that focus on large apartment complexes. These commercially maintained data sources are valuable, but provide insufficient information about significant segments of the rental market. The second source is the Census Bureau's American Community Survey, which is an invaluable resource for social scientists studying small-scale demographic variation. However, it represents a very small sample of households and can produce inaccurate data [2].

In this way, planners try to get up-to-date rental data locally. Professionals looking to track and gain insight into trends across the entire spectrum of this market have not been able to do it so effectively using existing data sources. The Craigslist data provides real-time information for planners in measuring local rental markets which are updating faster than statistics are released to understand local conditions and proactively respond to emerging issues, including accessibility issues. The Craigslist data provides information, disaggregated to district scale, on apartment characteristics such as apartment size and number of bedrooms. The American Community Survey's average rent does not tell planners how much a family of four persons have to pay this month to rent a three-bedroom apartment. Method of website scraping allows to analyze the Craigslist data by region to assess several housing market characteristics, including distributions of rents, area and rents per square meter.

For example, the study by University of California researchers G. Boeing and P. Wadell about rental affordability models combined the Craigslist dataset with estimates of Fair Market Rent from the Department of Housing and Urban Development and the American Community Survey's 1-year estimates of median household income and resident population. They found out that on average across regions the median rent in the filtered dataset is 7 percent higher for one bedroom, 3 percent higher for a two-bedroom, 7 percent lower for a three-room unit, and 1 percent higher for four-room units than the corresponding median rent from the Department of Housing and Urban Development. They also found out that the bias varies between regions and number of bedrooms: in New Orleans and Oklahoma City the median rents for the two datasets are very similar, while in other regions, such as Las Vegas, the median rents in the dataset Craigslist is significantly lower, whereas the average rent in New York, according to Craigslist, is considerably higher [2].

Thus, the developed methodology makes it possible to analyze data both in the required spatial scales and according to certain selected characteristics. In addition, the described methodology can be easily used in other projects and studies. Web scraping and related techniques can analyze and visualize huge amounts of data from the Internet. A large amount of information is useful only when it is really collected, analyzed and understood.

Based on the experience of American researchers, there is an opportunity to study the rental housing market in the Republic of Belarus. Using data from the Internet resource Realt.by, a correlation analysis of 180 units of apartments offered by tenants (20 units in each district of Minsk) was carried out. To obtain a computational model, information was collected from the entire sample and analyzed by 21 factors. The aim of this project was to build a pair correlation matrix to determine the degree of influence of various factors on the amount of rent for an apartment in the city of Minsk.

As a result, it turned out that the factors which have little influence on the amount of rent are the presence of grocery stores within walking distance (2.4%), the view from the window (7%) and the proximity of recreational areas (10.3%). The most significant factors, which is not surprising, are the number of rooms in the apartment (61.1%), the technical equipment of the apartment (52.3%), the state of repair (49.5%), the furnishing of the apartment (46.71%), the kitchen area (36.3 %) and the cadastral value of the land plot on which the residential building is located (34.4%). It was a surprise that the distance to the subway and the factor of transport accessibility are not decisive (20.3% and 24.1% respectively). Various studies can be carried out based on online rental listings and obtained results can be used to further build a mathematical model to assess the market value of rental housing from the available characteristics both in the city of Minsk and in the Republic of Belarus as a whole.

The analysis of research on the online rental housing market in the United States has revealed a number of different views and illustrated the advantages and disadvantages of the online rental source and its contradictions. Even though Craigslist listings provide advertised rents, not final negotiated rents in legal contracts,

researchers have been able to develop methodologies for obtaining and processing website data for analysis and urban planning. Therefore, having studied the online rental housing market in the Republic of Belarus and based on the analysis of supply the principles of formation and development of rental housing in the Republic of Belarus can be considered, as well as proposals and measures for the development and management of the stock of residential premises can be developed.

Studying the rental housing market using Internet sources is an up-to-date and affordable method. Such studies have been carried out not only in the USA. In 2015 A. Raey looked at eight hundred thousand user-generated housing searches on the British site Rightmove to study the geography of submarkets. Belarusian scientists and researchers can also use web sources to study the rental housing market, because online rental advertisements are widespread, especially in regional centers. Examples of such websites are Onliner.by, Realt.by, Hata.by, etc. At the same time, the disadvantages of the online rental housing market, identified by American scientists, can be considered in similar investigations of the Belarusian rental housing market.

Planners should use the latest methodology and data in planning technology and have the necessary technical skills and interest to do their job. The UC Berkeley Master's Course in Urban Informatics and Visualization develops these skills and a similar discipline or course project could be considered at technical universities in the Republic of Belarus within the Civil Engineering or Architecture faculty.

Thus, after reviewing the issue of the role of Internet resources in studying the rental housing market, it can be argued that there is a number of researches in this area. However, it is necessary to conduct even deeper investigations to study various economic and social aspects of society and the state.

REFERENCES

1. Craigslist [Electronic resource]. – Mode of access: http://www.craigslist.org. – Date of access: 10.04.2021.
2. Boeing, G., Waddell, P. New Insights into Rental Housing Markets across the United States: Web Scraping and Analyzing Craigslist Rental Listings / G. Boeing, P. Waddell // Journal of Planning Education and Research. – 2016. – Vol. 37, iss. 4. – P. 457–476.
3. America's Rental Housing – Evolving Markets and Needs / Joint Center for Housing Studies of Harvard University / ed .: M. Fernald. – Cambridge, 2013. – 50 p.
4. Belsky, E. S. The Dream Lives On: The Future of Homeownership in America / Joint Center for Housing Studies of Harvard University. – Cambridge, 2013. – 35 p.
5. Boeing, G. Online Rental Housing Market Representation and the Digital Reproduction of Urban Inequality / G. Boeing // Environment and Planning A: Economy and Space. – 2019. – Vol. 52, iss. 2. – P. 449–468.

Economics

UDC 65.011.56

INNOVATIONS IN WAREHOUSE LOGISTICS ON THE EXAMPLE OF AMAZON

A. SHULGA, JOHN BANZEKULIVAHO MUHIZI
Polotsk State University, Belarus

This article is devoted to innovations as a way to increase the competitiveness of the enterprise, as well as to increase the level of logistics service and reduce costs. The article is also devoted to the innovative activities of Amazon in the field of warehouse logistics.

At present, in the era of rapid development of technology, companies need to constantly improve, because even the leader in the market of trade, or the provision of services, risks being left behind. Innovation plays a special role in the development of enterprises. The most active innovations are implemented in the company "Amazon".

Currently, "Amazon" is the world's largest e-commerce company, as well as the world's largest online marketplace. This e-commerce platform places offers from 3 million sellers, whose sales account for 60% of the total number of sales, 40% of sales are accounted for by the products of "Amazon" itself. About 350 million products belonging to 34 categories are presented on the company's site [1].

Currently, there are more than 185 Amazon distribution centers in such countries as: the USA, Canada, England, Germany, Spain, France, Italy, Poland, the Czech Republic, China, Japan, India, Australia, Brazil [2].

These distribution centers are called executive centers in "Amazon" itself. These executive centers are warehouses with an area of about 50-60 thousand square meters, where the goods received from sellers are stored, sorted, processed and collected in accordance with the needs of the consumer.

The innovative activity of the company "Amazon" is known for the introduction of innovations in the field of warehouse logistics.

One of these innovations is the use of a storage system, in which the goods are located randomly throughout the warehouse. The main rule while using this storage system is that two identical products can not be placed in adjacent cells. At first glance, this approach may seem strange, but it has a number of advantages:

– flexibility. There is no need to plan separate locations for new products when expanding the range;
– efficient use of storage space. The goods are placed where they are placed. There is no need to leave empty spaces to place the goods waiting for receipt there;
– high speed when assembling the order. Information about the required product is transmitted to the employee closest to the location of the product;
– minimization of errors when assembling an order by employees, since similar products are not located next to each other.

The successful operation of this storage system is achieved through the use of barcoding. Upon arrival at the warehouse, the goods receive their code and are sent along the conveyor to the nearest free cell, which also has a barcode. Upon arrival of the product to the storage location, the employee, using the scanner available to them, scans the product itself and assigns it a cell. Information about the product and its location is sent to the database.

After receiving an order from the consumer, the system searches for a suitable employee and transmits information about the required product and the cell in which it is located to his scanner. After that, the employee needs to scan the barcode, pick up the product, and then place it on the conveyor and get information about the next order. Each employee selects about 1000 products per day.

The scanners used by the warehouse employees also have a timer function. The countdown starts immediately after the information about the required product is received. This makes the employee work as productively as possible, since if the time expires, the information will be sent to the database and the worker may subsequently be penalized. It is worth noting that despite the high efficiency, this system forces the employee to work at the peak of their capabilities, which subsequently leads to high staff turnover due to lack of motivation, since there is no incentive for completing the task on time [3].

"Amazon" is also actively implementing innovative technical products that allow you to automate the procedure of processing orders in the warehouse. In 2012, Amazon Corporation bought out "Kiva Systems", a company engaged in the development and production of robots that allow you to move cargo in real time in accordance with incoming orders. In 2015, the company changed its name to "Amazon Robotics".

It is worth noting that Amazon warehouses equipped with robots "Amazon Robotics" use a fundamentally new approach to the process of moving goods in warehouses. In contrast to the traditional approach, where inventory items are moved around the warehouse using conveyors or loaders, the goods are located on special modules equipped with storage cells and moved by robots.

The company "Amazon Robotics" produces 2 models of robots: with a load capacity of 500 and more than 1500 kg. The speed of the robots is 1.3 m/s. The battery lasts for an hour, and it takes 5 minutes to charge it.

In 2015, the number of robots of the company "Amazon Robotics" in the warehouses of "Amazon" was 30 thousand units. Amazon Robotics products are not sold to third-party companies in order to limit the spread of the technology among competitors.

When an order is received from a customer, information about the necessary goods is entered into the database of the warehouse management system, after which the program finds and directs the robot closest to the location of the required product.

Using the barcodes printed on the floor, the robot finds the appropriate storage module and lifts the module to the transport position with the help of grabs. Next, the robot moves the module to the order assembly area. An employee of the company is responsible for assembling the order. In the latest Amazon fulfillment centers, it is planned to introduce automated crane systems that will allow you to distribute goods faster and save about 10 seconds for processing a single order.

The use of these robots makes it possible to increase the speed and accuracy of warehouse processes when assembling customer orders [4].

"Amazon" is also known for its ambitious projects and patents. On April 5, 2016, a patent was registered for a system of storage and delivery of goods, which uses airships and uncrewed aerial vehicles [1].

Of course, at the moment, "Amazon" is a company that is ahead of its time due to its innovative activities. First of all, the implementation of such innovative solutions requires careful planning, a large amount of financial investments and, importantly, the confidence of management in the decisions made. It is the combination of these factors that has allowed "Amazon" to become a leader in the field of e-commerce. The Amazon innovation policy discussed in this article has its advantages and disadvantages. The advantages include high efficiency and accuracy of warehouse processes, efficient use of warehouse space. Together, this leads to an improvement in the quality of the service provided to consumers and a reduction in the cost of products. However, the disadvantages include high requirements for the company's employees, insufficient motivation of the staff, and as a result staff turnover. It is also worth noting that widespread automation can lead to a significant reduction in the number of jobs provided.

Thus, the company needs to organize business processes using the joint work of people and robots, as well as increase the efficiency of personnel through motivation, rather than a system of penalties.

REFERENCES

1. Amazon – Wikipedia [Electronic resource]. – Mode of access: https://ru.wikipedia.org/wiki/Amazon. – Date of access: 2021.03.24.
2. List of Amazon locations [Electronic resource]. – Mode of access: https://ru.qaz.wiki/wiki/List_of_Amazon_locations#Fulfillment_and_warehousing. – Date of access: 2021.03.24.
3. Amazon. Algoritmy raboty samogo krupnogo riteylera v mire [Electronic resource]. – Mode of access: https://habr.com/ru/company/pochtoy/blog/406783/. – Date of access: 2021.03.24.
4. Amazon Robotics – Wikipedia [Electronic resource]. – Mode of access: https://ru.wikipedia.org/wiki/Amazon_Robotics. – Date of access: 2021.03.24.

UDC 621.398 + 338.47

TELEMATICS BUSINESS IN THE REPUBLIC OF BELARUS

S. PAPOVA, R. SARVARY
Polotsk State University, Belarus

In this article, the author analyzes the telematics market in the Republic of Belarus, identifies the most important features of the content, formation and application of the telematics solution to achieve high-quality and long-term economic results.

The market of telematics services is developed all over the world due to the demand and demand for telematics solutions. Telematics solutions are a relatively new phenomenon for the Republic of Belarus. They include a set of components (software, monitoring equipment, telecommunications products, etc.), which together allows you to solve many problems in different areas of the economy and business, including optimizing the operation of the fleet, automating delivery processes, as well as reducing the cost of production and delivery of goods, works and services.

From the point of view of economic indicators and the system of economic management, the Republic of Belarus belongs to the countries with transition economies, but at the same time has specific features [1].

It should be noted that now there are many products and solutions on the market for monitoring a car, a person, a stationary object, etc. In the Republic of Belarus, there are about 20 companies offering their developments [1]. In Table 1, we looked at some of the largest companies that provide telematics services. For us, the most important criteria for comparison were solving problems, additional functions, and the number of companies using telematics solutions.

Table 1. – Characteristics of telematics products

Company name	Solving problems	Additional features	Service quantity
Gurtam (2009)	Determining the exact location; monitoring the traffic schedule; analyzing the effectiveness of the fleet; optimizing routes; ensuring safety; analyzing the effectiveness of the entire fleet; searching for nearby objects	Fuel consumption control; temperature control; passenger counter; the fact of opening the doors; communication with the dispatcher; "Alarm button"; remote engine lock	>2 500 000
Beltransputnik (1994)	Control of location, speed and route; fuel consumption, eco-driving, driving efficiency ratings of drivers; compliance with AETR, time forecast by tachograph, DDD remotely; control of refrigerator modes and temperature telematics of transportation; legal support of disputes. Geofensing. Smart Maps		About 35 000
Omnicomm (2006)	mileage based on geographical zoning; idle time; engine operation in various modes	Fact of opening doors	>3 000
Resurscontrol (2008)	Determining the exact location; search for the desired address; route drawing; control of vehicle speed, fuel consumption, axle load, visits to control points; temperature control; passenger counter;	"Alarm button"; remote engine lock; notification in the form of SMS or email	No data about the numbers

Source: compiled by the author on the basis of [2-6].

After analyzing the tabular data, several conclusions can be drawn.

First, most of the solutions that companies provide are very similar: they monitor the movement of transport, the behavior of the driver, the technical condition of transport and cargo.

Secondly, we found that Gurtam, which has Wialon (a platform for GPS monitoring and IoT), provides a more suitable telematics solution. To access the web interface, you only need a browser. macOS, Linux, Windows-no difference. The main functionality of the monitoring system on a smartphone or tablet. Wialon covers 99% of the customer's GPS satellite monitoring needs. Another 1% of each business has its own, and these are specialized tasks [7]. Wialon provides an application for monitoring route vehicles and a service for monitoring delivery services, as well as web-based solutions for monitoring the quality of driving, driver mode, and maintenance planning [7].

Based on our analysis and the experience of Belarusian telematics companies, we can conclude that telematics solutions can also be used in online medicine and mobile healthcare, which in turn will allow us to implement the following pros:

- consultations in the process of providing medical care to patients;
- training of medical personnel;
- monitoring the treatment of patients;
- monitoring and analysis of the health status of the country's population.

The Republic of Belarus has a "Republican system of Telemedicine counseling", which includes 251 organizations. Through it, medical professionals exchange experiences and consult with each other on particularly difficult cases. There is also a unified telemedicine system for digital fluorography in Minsk [8]. EPAM (an IT software development company) oversees the system of accounting for organ and tissue donors, which can also be attributed to telemedicine [9]. Every year the competition in the market of telematics solutions increases, but at the same time more advanced, more technologically advanced solutions become in demand. Consumers are willing to invest in solutions that will reduce costs and increase efficiency in the long run. In our opinion, new solutions will be introduced to the telematics market, which will be more reliable, more informative, and more convenient for the user.

Over the past 20 years, the number of cars in the Republic of Belarus has increased fourfold, exceeded 3 million units and continues to grow. At the same time, the Republic of Belarus is gradually approaching the average European level of vehicle ownership – about 500 cars per 1000 residents. A sharp increase in motorization can lead to an aggravation of the entire complex of transport problems: a decrease in traffic speeds, traffic jams, an increase in accidents, and a deterioration in environmental indicators that characterize the quality of the urban environment. [10]. In our opinion, to avoid such problems, companies and enterprises can implement telematics solutions in the practice of their business. Using satellite tracking and the ability to transmit data about a dynamic unit, companies and their customers can track the condition of goods, location, regulate the work of drivers and their behavior on the roads, as well as the quality of delivery of goods to their destination. If a GPS device and a SIM card with the Internet are sufficient to track the location of a car with a load, then additional tools are used to track the condition of the cargo and the quality of work of drivers, such as video monitoring, temperature and motion sensors, optical character recognition (OCR) for reading container numbers, radio frequency identification (RFID) and QR codes for identifying and tracking deliveries, tachographs for tracking dynamics and monitoring the driver, as well as basic digitization of trade documents, and much more. Thus, thanks to telematics solutions for monitoring the delivery of goods, goods movement, vehicles, GPS technology is changing the traditional aspect of many business areas. Providing up-to-date transport data allows you to continuously optimize transport operations: routing, queuing, loading and unloading, and so on. At any time, 24 hours a day, the organization can get complete information about the date, time, speed of the vehicle, the location of an individual vehicle, this group or all vehicles at the same time. Thus, he / she has full control of the vehicles. Constant monitoring of transport also allows you to.

Based on the conducted research, the author comes to the conclusion that the telematics market of the Republic of Belarus has the potential for long-term development due to the existence of strong players in the telematics business, as well as the presence of an advanced IT sector, which in the structure of the telematics complex is a software manufacturer and improving the offer of telematics solutions. The more unique the supply, the greater the demand among consumers, as a result, increases the profit of the manufacturing company and affects the macroeconomic result through microeconomics indicators. Companies that produce telematics services in the Republic of Belarus can consider foreign experience in the development and application of telematics solutions for the successful implementation of their own strategies to attract consumers. Among the potential users of telematics services are both business representatives and individuals, the final decision for which may differ depending on the desired end result. In addition, the availability of a telematics unit and monitoring software in special cases can be a starting point for the development of advanced systems integrated with databases and programs of customer enterprises to provide service according to business needs.

REFERENCES

1. GPS-мониторинг транспорта // [Электронный ресурс]. – Режим доступа: https://beltranssat.by/resheniya/gps-monitoring-transporta.html. – Дата доступа: 02.04.2021.
2. Почему именно Navirec? // Navirec [Электронный ресурс]. – Режим доступа: https://www.navirec.by/. – Дата доступа: 03.04.2021.
3. Компания «Омникомм-Сервис» - золотой дилер Omnicomm в Беларуси // Золотой дилер [Электронный ресурс]. – Режим доступа: https://www.omnicomm.by/about/. – Дата доступа: 02.04.2021.
4. Система мониторинга транспорта // resurscontrol.com [Электронный ресурс]. – Режим доступа: https://resurscontrol.com/sistema-monitoringa-transporta/. – Дата доступа: 25.03.2021.
5. Спутниковые системы мониторинга // МТС [Электронный ресурс]. – Режим доступа: https://www.mts.by/corp/internet-veshchey-iot-m2m/monitoring-transporta/sputnikovye-sistemy-monitoringa/. – Дата доступа: 28.03.2021.
6. Gurtam выпускает новый продукт для агробизнесов // Gurtam [Электронный ресурс]. –2019. – Режим доступа: https://gurtam.com/ru/blog/new—product—for—agribusinesses. – Дата доступа: 25.03.2021.
7. M2M: подключенные автомобили и их потенциал для бизнеса // Business Service [Электронный ресурс]. – 2014. – Режим доступа: https://www.orange-business.com/ru/blogs/get-ready/mobilnost/m2m-podklyuchennye-avtomobili-i-ih-potencial-dlya-biznesa. – Дата доступа: 25.03.2021.
8. Настоящее и будущее белорусской модели развития // sb.by [Электронный ресурс]. – Режим доступа: https://sb-by.turbopages.org/sb.by/s/articles/nastoyashchee-i-budushchee-belorusskoy-modeli-razvitiya.html. – Дата доступа: 01.04.2021.
9. ИТ в Беларуси // Belarus.by [Электронный ресурс]. –2018. – Режим доступа: https://www.belarus.by/ru/business/doing-business/it-belarus 2018. – Дата доступа: 05.04.2021.
10. Сведения о состоянии дорожно—транспортной аварийности в Республики Беларусь в 2015 г.: аналитич. Сб. / сост. О.Г. Ливанский; под общ. Ред. Н.А. Мельченко. Минск: Полиграфический центр МВД Респ.Беларусь, 2016. 89 с.

UDC 338.48

COORDINATED DEVELOPMENT OF INBOUND TOURISM WITH THE NEEDS OF THE NATIONAL ECONOMY OF THE REPUBLIC OF BELARUS

H. MURAVEVA, R. SARVARI
Polotsk State University, Belarus

In the article, the author analyzed the tourism sector on the basis of the decree on the approval of the National Tourism Development Strategy in the Republic of Belarus until 2035 in order to identify ways to develop inbound tourism, taking into account the needs of the national economy.

According to the World Travel and Tourism Council's annual report on the travel and tourism economic impact 2019, the tourism sector accounted for 10.4% of global GDP and 319 million jobs in 2018 [1]. The fact demonstrates a significant contribution to the global economic indicator of the tourism sector and the labor market. But due to the COVID-19 pandemic, the decline in January-October 2020 represents 900 million fewer international tourist arrivals compared to the same period in 2019, and translates into a loss of US$ 935 billion in export revenues from international tourism, more than 10 times the loss in 2009 under the impact of the global economic crisis [2]. Analyzing the above facts, we realized that tourism, having an impact on the global economic result, needed business and economic instruments to mitigate the consequences of COVID-19 and to the subsequent development of the tourism sector.

During identifying the key growth points of the tourism sector in the Republic of Belarus, the author noticed a significant impact of the tourism sector on the Belarusian macroeconomic result: according to the results of the construction of the Tourism Satellite Account of the Republic of Belarus for 2016, the contribution of the tourism sector to GDP was 2.2% [3]. Author supposes that the development of inbound tourism, as an indicator that makes a significant contribution to the GDP of the Republic of Belarus, should be carried out taking into account the needs of the national economy in the context of the COVID-19 pandemic.

According to this decree on the approval of the National Strategy tourism development in the Republic of Belarus until 2035, the following economic objectives were set [4]:

– to increase the total annual volume of international tourism and passenger transportation services from USD 1.2 billion to USD 3 billion;
– to diversificate inbound tourist trips
– to increase in the number of arrivals of tourists from OECD countries up to 40%;
– to bring in an average income from one foreign visitor from 71 to 250 US dollars.

Considering this state document, the author noted that the priority development factors were the maximization of the use of the already used economic resources of the Republic of Belarus in the field of tourism.

Thus, as a matter of priority, we decided to analyze such indicators of socio-economic development as the number of people employed in the tourism sector, the nominal accrued average monthly salary of employees of tourism organizations and the number of places for tourists and the proceeds received from them.

According to Table 1, the number of people employed in the tourism sector increased from 2015 to 2019 by 9% and amounted to 243.3 thousand rub. human. At the same time, the percentage of employment in the tourism sector in the total number of people employed in the economy increased: this figure was 4.9% in 2015, and from 2016 to 2019 it was increasing to 5.6%. Analyzing the average monthly salary of employees of organizations in the field of tourism, the author has noticed the steady growth trends: in 2019 it was 845.1 rubles, which is 11% higher than the indicator in 2018 (Table 1).

Also, analyzing Table 1, the author found that the number of collective accommodation facilities and the number of rooms respectively increased from 2015 to 2019. This can also be attributed to the fact that there is also a need for such places, due to the increase in demand for tourist products. Thus, the number of placed persons increased from 2,366.8 to 2,950.4 thousand people in 2019. Accordingly the proceeds and similar means of placement were increased.

Summing up, the analysis of indicators of the development of the national economy was characterized by positive dynamics of economic indicators in the field of tourism. This fact demonstrates the development trend of the tourism sector within the framework of the draft national strategies of the Republic of Belarus. However, this is not enough to achieve the planned results. Therefore, it is necessary to more dynamically implement the development of the tourism sector.

The author proposes to consider it as a driver of development of the national economy of the Republic of Belarus. In addition, the author suspects that it is fruitful for the Republic of Belarus to use the foreign experience

for inbound tourism development to achieve results in the field of tourism at the micro, meso and macro levels. At the same time, it is worth considering the volatile situation caused by the COVID-19 pandemic. According to the recommendations of the World Tourism Organization (UNWTO) on the restoration and development of inbound tourism, in the current situation, attention should be paid to the development of online products and digital marketing in particular, to use the full potential of social networks [5].

Table 1. – Indicators of socio-economic development of tourism

Indicator	2015	2016	2017	2018	2019
The number of people employed in the tourism sector (on average per year), thousand people	222,2	242,8	242,0	241,7	243,3
The number of people employed in the tourism sector to the total number in the economy (%)	4,9	5,5	5,6	5,6	5,6
Nominal accrued average monthly salary of employees of organizations employed in tourism, rub.	646,75	656,0	719,7	784,9	875,1
Number of collective accommodation facilities, units	1 014	1 052	1 072	1 077	1 089
Number of rooms, rooms (at the end of the year)	39 161	40 067	40 646	40 607	40 773
Number of accommodated persons, thousand people	2 366,8	2 459,9	2 580,8	2 847,6	2 950,4
Proceeds from placement in similar placement facilities, mln rub.	158,12	182,7	205,1	240,9	712,2

Source: [3].

According to the decree approving the National Strategy for Tourism Development in Belarus until 2035, one of the priority areas of development is a highly efficient economy based on knowledge and innovation [4]. Within the framework of this strategy the author persumes that the development of inbound tourism should also be carried out using innovative technologies.

Innovation in tourism is an indispensable condition for increasing competitiveness and the consumption of tourism services, as tourism practices expand, tourists become more demanding. Tourists' desire to receive new emotions and impressions has been rising. New travel locations are opening, more and more destinations are developing. The types of communications are being technologically improved. Tourists are becoming more informed, educated and experienced [4]. Thus, the use of IT technologies will accompany the actualization of the tourist product of Belarus, as a result, it will lead to the increase in inbound tourism indicators and an improvement in the national economy as a whole.

Tourism is characterized by the widespread introduction of innovative information technologies in various spheres of tourism industry subjects' activity. Digitalization contributes to the development of tourism services. The main directions for the further formation of an integrated environment for the development of the tourism industry are [4]:

– assistance in the active introduction of electronic document management in the tourism sector;
– development of a system of tools for promoting destinations based on the use of advanced information technologies;
– introduction of augmented and virtual reality into tourist routes, as well as objects of cultural, educational and ecological tourism, visualization, development of virtual excursions;
– creation of multilingual information services for foreign tourists, the purpose of assisting in the selection of tourist destinations and infrastructure, drawing up tourist routes, taking into account the wishes and preferences of the user;
– development of an integrated information platform, complete and reliable information about the subject and objects of the tourism industry;

– assistance in the introduction of biometric passports, ID-cards, electronic visas, allowing travel authorization on a digital platform;

– installation of QR codes at objects of cultural, educational and ecological tourism, as well as the development of information services with audio guides for their use;

– development of a tourist portal to increase its functionality.

The example of an idea for the use of IT technologies in the field of tourism is the project "Virtual Museums of the Next Space", the developer of which is the Russian company "3Drimtim". This project received the title of "The best IT solution in the museum business and socio-cultural project." In the framework of VR, MR and AR-technologies in the field of culture with feedback through a neuron interface, which allows museum workers without specialized technical education to solve the basic functions (demonstration, preservation and archiving). This project was aimed at using augmented reality to create a virtual museum. 3D galleries, exhibits and even historical characters have become available to anyone with an Internet connection. So the Tretyakov Gallery was able to visit virtually thousands of tourists, which contributed to the actualization of this tourist site [6].

The author's research and analysis of statistical data revealed the following: today, for the coordinated development of the tourism sector with the needs of the national economy, it is necessary to use IT technologies in tourism. This is an up-to-date solution for the restoration and development of the tourism sector in the Republic of Belarus. The step will contribute to the actualization of the tourism product, increase the indicators of tourism activity and as a result can contribute to meeting the needs of the national economy of the Republic.

REFERENCES

1. World Travel & Tourism Council: Travel & Tourism Economic Impact 2019 [Electronic resource]. – 2019. – Mode of access: https://www.slovenia.info/uploads/dokumenti/raziskave/raziskave/world2019.pdf. – Date of access: 02.03.2021.
2. World Tourism Barometer of December 2020 [Electronic resource]. – 2020. – Mode of access: https://www.e-unwto.org/doi/pdf/10.18111/wtobarometerrus.2020.18.1.7?download=true&. – Date of access: 04.03.2021.
3. Туризм и туристические ресурсы в Республике Беларусь, Буклет 2020 / Редакционная коллегия: И.В.Медведева – председатель редакционной коллегии, И.С.Кангро, Ж.Н.Василевская, О.А.Довнар, Е.И.Кухаревич, И.А.Мазайская, Т.В.Лапковская, Е.М.Палковская, И.Г.Чигирёва – Минск, 2020. – С. 6.
4. Национальной стратегии развития туризма в Республике Беларусь до 2035 года [Электронный ресурс] Совет Министров Республики Беларусь. – Режим доступа: http://mogilev-region.gov.by/files/04-06-2020-3postanovlenie.pdf. – Дата доступа: 03.03.2021.
5. UNWTO подготовила рекомендации для правительств по преодолению кризиса в туротрасли [Электронный ресурс] // tourism.interfax.ru. – Режим доступа: https://tourism.interfax.ru/ru/analytics/market_overview/68621. – Дата доступа: 07.03.2021.
6. 8 лучших IT-решений в туризме в 2018 году [Электронный ресурс] Ассоциация туроператоров. – Режим доступа: https://www.atorus.ru/news/press-centre/new/44391.html. – Дата доступа: 10.03.2021.

Economics

UDC: 330. 3

THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF THE TELEMATICS PRODUCTS AND SERVICES FOR THE SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

R. SARVARI, I. ZENKOVA
Polotsk State University, Belarus

The author's research is interconnected with the socio-economic policy of the Republic of Belarus. Structural components and metrics of economic efficiency in the scientific work are studied based on government demand, which is reflected in the National Strategies for Sustainable Socio-Economic Development of the Republic of Belarus until 2020 and 2030.

Introduction. In a transitional economy, socio-economic systems are undergoing significant changes for sustainable development at the micro-, meso- and macro-levels. At the same time, the strongest aspects of the system are considered as the main criteria and foundation for growth, which in the transition period is a driver of development and support for many areas of the economy. Considering the national economy of the Republic of Belarus, in analyzing and substantiating the ways of long-term development, we proceed from the goals and objectives of state program documents describing strategic steps to achieve the final result in the socio-economic sphere. Among these documents is the National Strategy for Sustainable Socio-Economic Development of the Republic of Belarus until 2030, in which the basis for sustainable development and ensuring socio-economic security is the basing of the Belarusian economy on innovative solutions, the effective use of national resources, as well as the country's comparative competitive advantages [1]. If we consider growth and development, which, in principle, are not interchangeable or equal categories, then for their balanced position it will be important to rely on the advanced development of science and the information technology sector, as they are the structures for optimizing the production process, as well as drivers of sustainable development of the national socio-economic systems. In our opinion, telematics as a socio-economic category covering the field of informatics and telecommunications can have a significant impact on the long-term and proactive growth and development of the national economy. It was pointed out, that telematics and economic solutions designed on its basis are poorly studied in Belarusian science. In the fund of the National Library of the Republic of Belarus, the author found only 3 Belarusian dissertations and only in the technical section: S.N. Kandybo considered analytical phototriangulation using the GPS method for determining the coordinates of the design centers of aerial photographs [2], O. V. Kravchenko presented automated systems processing of geodetic information based on the technology GPS-electronic tachometer [3], ON Pisetskaya studied the determination of the shape of the earth using GPS-measurements [4]. As we can see, the above presented Belarusian fundamental works demonstrate the technical side of the issue of GPS service, which is part of the structure of telematic solutions. Telematics in technical aspect from the perspective of geodesy and mapping was considered by such researchers as O. Gruber, E. Merrita, F. Acherman, L. E. Blankerberg, H. Burman, K. Torlegard K., A. Lobanova, V. I. Pavlov, I. D. Kargopolova, I. T. Antipova, Sh. E. Kuznetsova, S. A. Khmelevsky, S. I Belikov; issues of designing geodetic networks are presented in the studies of Y. I. Markuze, V. D. Bolshakov, V. A. Kougy, M. M. Mashimov, A. A. Solomonov, A. S. Yarmolenko, etc. In fundamental research of the Russian school the most relevant works for us are the following: M. Ozherelyev, who studied improving the quality of information support for transport and telematic systems in cities and regions using the example of dispatch control of passenger transport [5]; B. Shamsi, who investigated the integration of INS / GPS-GLONASS in order to correct the orientation angles of a moving object [6]; S. Dolganiuk presented methods and algorithms for information processing for positioning mobile industrial facilities based on GLONASS / GPS [7]; P.V. Artamonov assessed the durability of load-bearing metal structures of dump trucks using a GPS satellite monitoring system [8]; G. Kiselevich substantiated the structure of information support for monitoring and controlling the movement of vessels using GLONASS / GPS [9]. The above dissertations are valuable in terms of the structural construction of a telematic solution, using it in various areas of socio-economic relationships. Furthermore, our research demonstrated that both telematics and telematics solutions do not have an appropriate definition in socio-economic aspect in Belarussian studies. Therefore, using foreign experience is valuable opportunity in order to formulate author's approaches in definition formulation. The economic vision of telematics solutions was presented in researches of the following foreign scientists: G. Waksman, M. Harkin, O. Tettero, D. J. Out, H. M. Franken, J. Schot, M. Duplaga, M. Leszczuk, K. Zielinski, E. A. de Castro, C. Rodrigues, C. Esteves, A. da Rosa Pires, Shu-Hao, Chin-Yuan Fan, A. Sachez-Macian, J. E. Lopez de Vergara, E. Pastor, L. Bellido, R. Janecki, S. Kraviec, G. Sierpinski, K. Schilling, H. Roth, M. Pajak, L. Muslewski, M. Woropay, Z. Smalko.

Methodology. The author puts forward the assumption that telematics solutions can have a positive impact on the socio-economic development of the national economy, thereby being the drivers of growth and development of the national economic system. Research methods include analysis, synthesis, generalization, induction, deduction, observation. The novelty of the research lies in the author's study of telematics solutions as drivers of the development of the national economy. The exclusivity of the research is emphasized by the lack of existing fundamental works in the Belarusian science on the topic of telematics, considered in the socio-economic aspect.

Main research. At the beginning of our studying, it was important to define the main research categories: telematics and telematics solutions. We note that telematics consists of two interrelated concepts, such as telecommunications and informatics (information technology). At the same time, telematics is inextricably linked with GPS tracking technology, which was originated in the 1960s, when the US Department of Defense and the Applied Physics Laboratory of Johns Hopkins University began developing a global positioning system (GPS) [10]. GPS used satellites in the sky and a receiver on the ground to help the US military track military personnel, installations, facilities and equipment. GPS has also improved American missiles, making them more accurate in targeting and airborne control. Basically, telematics is a new concept, and for the first time it was mentioned in 1978 in the work of French scientists Simon Nora and Alain Minc. When writing a report for the French government, they described telematics as the process of transmitting information using telecommunications [11]. In the process of development, the terminology underwent changes, and subsequent formulations were relative to the scope. Analysis of the existing approaches in defining the category of "telematics" showed that in many respects the conceptual apparatus of scientists and researchers is similar in structure, and, at least, means a technology, a set of technological tools or a field of technology. Further, this fundamental approach covers the structure of the telematics complex, considering the scope and type of monitoring objects. At the same time, as a result of the study of the concept of "telematics" as a socio-economic category, we come to the conclusion that its definition does not have a universal character and for the topic of the dissertation research, in our opinion, should be clarified in the direction of commercialization and business, which is important for the formation of telematics solutions as of a driver of the development of the national economy at the micro-, meso-, macro-levels. The author's definition has not only theoretical value, but also practice-oriented significance in the development, creation and implementation of telematics solutions in the domestic and international markets. Thus, the category "telematics" in the author's supplemented definition is presented as follows. Telematics is a related area of socio-economic and information-technological relationships regarding the development, creation, development and promotion, as well as the implementation of telematics solutions to meet the various needs of the national economy, taking into account the specifics of market supply and consumer demand. The author's terminology covers the area of related telematics applications. At the same time, for the process of creating telematics products that are interesting to the market and the consumer, an in-depth study of the theoretical and structural components of telematic solutions is essential, among which there is a telematics complex that forms the structure of a telematics solution. The theory and methodology of the formation of economic solutions based on telematics services are interrelated components in the creation, promotion and implementation of a telematics product. Today, there are many approaches to creating, managing and marketing a product. We share the opinion of O. V. Ilyina on the organization of product marketing management; the concept of life cycle management is among the key components of the researcher's methodology. The model focuses the business on forecasting short and long-term trends in supply and demand, as well as conducting a comprehensive and systematic work to assess the competitiveness of each service and developing control actions to increase its level, planning and developing new services, using an integrated approach to the formation of marketing activities at all stages of creation, implementation and implementation of services, i.e. at all stages of the life cycle [12, p. 4]. In our opinion, O. V. Ilyina's research is valuable in constructing the structure of marketing problems that arise at the stages of the life cycle of high-tech products. This concept allows you to timely respond to changing market conditions, track supply and demand to increase the demand for the product, as well as improve the tools for its promotion to the market. We understand that with the increase in the quantitative and qualitative level of supply in the telematics services market, the life cycle of a telematics product decreases due to increased competition and decreased demand from the consumer. In studying the parameters of demand and factors influencing it in the process of forming a telematics solution, we consider it valuable to consider the position of A.M. Levin, who represented demand and price factors through the prism of mathematical measurements. According to the scientist, if we analyze the demand curves and supply curves from the point of view of the manifestation of the vector properties of the price, then these properties do not appear, since the price functionally depends on the quantity of goods that is not a vector quantity. Among the alternative opinions of economists, we single out the usefulness of the research of R. A. Abdullaev, who in his dissertation, when forming the price of a good or product, is guided by the problem of consumer surplus studied earlier, which was presented by J. Hicks and falling prices for goods [13, p. 37; 14]. At the same time, the opposite opinion was expressed

by P. Samuelson that the theory of consumer surplus should be abandoned due to its ineffective use in applied research [15]. However, we agree with the opinion of R. A. Abdullaev that the analysis of consumer surplus is useful, since it can be used when deciding on preferences in determining the effective price or the rationality of introducing "discriminatory prices" depending on the welfare of the consumer and the current market -economic situation, etc.

F.K Kotler, in his concept of a four-level product model, imagined that each element of the aggregate product increases the consumer value of the product - all together they form a hierarchy of consumer value. The purpose of the product is to demonstrate benefits through satisfying a need. Thus, through the formation of an economic solution based on telematics services, the business creator determines what will be valuable components for the consumer in the product structure, what added utility each component will bring individually or in batch use [16]. Another model of F. Kotler, the theory of the "Black box" [17], allows you to correctly determine the final composition of the telematics solution. This theory was originally applied to define consumer behavior. An imaginary black box - consumer thinking and behavior at the time of analysis and purchase of goods, works and services. In the telematics business, the "black box", according to the author, is a space of consumer requirements and needs that must be satisfied by a telematic product or service. Thus, at the entrance, the telematics company analyzes the demand from a potential buyer, identifies his needs and weaknesses of his existing solution, in order to further present a unique offer suitable for a specific client. At this point, we conclude that the final service or product of the telematics business is directly related to the level of demand and competition among companies offering similar services to consumers. In this regard, the more detailed we approach the analysis of the components of the "black box", the greater our chances of meeting the approval of a potential buyer and making a sale. The structure of the "black box" usually contains the following components:

1. Purpose of purchasing a telematics solution
2. Desired result (consumer motivation, what value he is looking for)
3. Customer experience (positive or negative) and possible objections
4. Available alternatives and competitors' proposals.

Results: Based on the studied existing research and scientific works in the field of formation, marketing and product management, the author enclosed that, in general, experts focus on the theoretical component of the issue, since it is the foundation for building and promoting a product to the market. Just like in business or in negotiations with a large consumer, the creator of a telematics solution must be sure that he has made the necessary preparation for presenting his product, work or service to the market. However, the analyzed models cannot fully represent the necessary steps for the formation of economic solutions based on telematic services, since the telematics field and the components that are included in the structure of telematics solutions require an individual approach in analysis and selection. Our model of the formation of economic solutions based on telematics services is aimed at applied application. The value of the model lies in the detailed and deep study of the issues that arise at each stage of the formation of a telematics solution and the model of its sale and promotion in the telematics market. The advantages of the model:

1. Versatility. It is focused both on existing users / integrators of economic solutions based on telematic services, and on beginners (startups).

2. Fundamentality. It allows you to carry out the necessary preparatory research and study the issues of forming, collecting and implementing decisions based on existing experience, which reduces the risks of making incorrect administrative decisions and increases the chances of project success.

3. Proactivity. The author's model is focused on the prospects for the development of a telematics solution, considering the current situation and future changes, which allows timely monitoring the competitive supply and socio-economic situation in the region of implementation, and, as a result, it allows to respond to dynamic market conditions to maintain / increase consumer demand.

REFERENCES

1. Национальная стратегия устойчивого социально-экономического развития Республики Беларусь на период до 2030 года [Электронный ресурс] : Официальный веб-сайт Министерства экономики Республики Беларусь. – Режим доступа: https://www.economy.gov.by/uploads/files/NSUR2030/Natsionalnaja-strategija-ustojchivogo-sotsialno-ekonomicheskogo-razvitija-Respubliki-Belarus-na-period-do-2030-goda.pdf. – Дата доступа: 23.04.2019.
2. Кандыбо, С. Н. Аналитическая фототриангуляция с применением GPS-метода определения координат центров проектирования аэрофотоснимков : автореф. дис. … канд. техн. наук : 25.00.32 / С. Н. Кандыбо. – Горки, 2003. – 24 л.
3. Кравченко, О. В. Автоматизированная система обработки геодезической информации на основе технологии GPS-электронный тахометр : автореф. дис. … канд. техн. наук : 25.00.32 / О. В. Кравченко. – Горки, 2004. – 12 л.

4. Писецкая, О. Н. Определение фигуры земли с использованием GPS-измерений : автореф. дис. … канд. техн. наук : 25.00.32 / О. Н. Писецкая. – Новополоцк, 2007. – 22 л.
5. Ожерельев, М. Ю. Повышение качества информационного обеспечения транспортно-телематических систем в городах и регионах (на примере диспетчерского управления пассажирским транспортом) : дис. … канд. техн. наук : 05.22.01 / М. Ю. Ожерельев. – М., 2008. – 184 л.
6. Шамси, Б. Комплексирование ИНС/GPS-ГЛОНАСС с целью коррекции углов ориентации подвижного объекта : дис. … канд. техн. наук : 05.11.03 / Б. Шамси. – М., 2000. – 184 л.
7. Долганюк, С. И. Методы и алгоритмы обработки информации позиционирования мобильных промышленных объектов на базе ГЛОНАСС/GPS : дис. … канд. техн. наук : 05.13.01 / С. И. Долганюк. – М., 2010. – 150 л.
8. Артамонов, П. В. Оценка долговечности несущих металлоконструкций карьерных автосамосвалов с использованием системы спутникового мониторинга GPS : дис. … канд. техн. наук : 05.05.06 / П. В. Артамонов. – Кемерово, 2010. – 184 л.
9. Киселевич, Г. В. Информационное обеспечение для мониторинга и управления движением судов на основе функциональных дополнений СВ диапазона ГНСС ГЛОНАСС/GPS в бассейне реки Лена : автореф. дис. … канд. техн. наук : 05.12.13 / Г. В. Киселевич. – СПб., 2018. – 16 л.
10. The History of Telematics [Electronic resource] : Route4Me. - Mode of access: https://blog.route4me.com/2018/03/telematics-history/. – Date of access: 12.06.2020.
11. Book Reviews: Simon MORA and Alain MINC, The computerization of society. A report to the President of France, 1980 [Electronic resource] : SAGE journals. – Mode of access: https://journals.sagepub.com/doi/abs/10.1177/016555158100300110?journalCode=jisb. – Date of access: 27.05.2019.
12. Ильина, О. В. Маркетинговое управление жизненным циклом высокотехнологичной продукции (на примере рынка инфокоммуникаций) : автореф. дис. … канд. экон. наук : 08.00.05 / О. В. Ильина. – М., 2011. – 26 л.
13. Абдуллаев, Р. А. Детерминанты потребительского поведения и спроса в трансформирующейся экономике : дис. … канд. экон. наук : 08.00.01 / Р. А. Абдуллаев. – Ростов-на-Дону., 2006. – 201 л.
14. Хикс Дж. Р. Стоимость и капитал. – М.: Издательская группа «Прогресс». – 1993. – С. 135.
15. Самуэльсон П. А. Основания экономического анализа. – СПб.: Экономическая школа, 2002. – С. 211.
16. Philip Kotler, Marketing Management: Analysis, Planning, Implementation and Control, 7th ed. (Upper Saddle River, NJ: Prentiee Hall, 1991): 62-72.
17. Black Box Model [Electronic resource] Design shack. – Mode of access: https://designshack.net/articles/business-articles/using-the-black-box-model-to-design-better-websites/#:~:text=Philip%20Kotler's%20Black%20Box%3A%20The,Black%20Box%20%E2%86%92%20Buyer%20Response. – Date of access: 24.10.2020.

Economics

UDC 339.138

DIGITAL ADVERTISING MARKET IN BELARUS: CURRENT STATE AND DEVELOPMENT PROSPECTS

I. TARASEVICH, S. IZMAILOVICH
Polotsk State University, Belarus

This article systematizes information on the main digital marketing tools and the specifics of choosing a suitable promotion channel, summarizes the main indicators of the development of the digital advertising market in the Republic of Belarus, and identifies trends and challenges of its development.

The current stage of development of the world economy is characterized by a profound restructuring caused by the widespread introduction of digital technologies. The digitalization of the economy is an urgent process that has embraced all the developed countries of the world. To maintain competitiveness in modern conditions, it is necessary to use modern technologies that allow achieving economic benefits and approaching world leaders in economic development. Numerous legislative acts state that digitalization is a priority prospect for the development of the Republic of Belarus, among which are the Strategy for the Development of Digitalization in Belarus for 2016 - 2022, Decree No. 8 "On the Development of the Digital Economy" and others. All of these legislative acts focus on the need to transform business processes by introducing digital technologies into all spheres of society [1]. The advertising services market is also undergoing significant changes.

The advertising services market is the totality of consumers of advertising services provided by advertising agencies and their other manufacturers [2]. However, in modern conditions, many organizations face the fact that the use of traditional advertising services is no longer enough to ensure the competitiveness of their products. The digitalization of the economy has led to the emergence of new types of advertising services and methods of promoting goods. This determines the increased attention to digital technologies for the promotion of goods and services.

There are currently numerous digital promotion technologies. Consider main digital marketing tools, represented in Table 1.

Table 1. – Analysis of main digital marketing tools

Tool	Description	Advantages	Disadvantages
1	2	3	4
Social Media Marketing (SMM)	The essence of social media promotion (SMM) includes the distribution of content, which takes place without the participation of the developer. SMM is one of the main digital marketing tools in 2021.	SMM is a convenient channel to reach the target audience. Social media allow freely selecting the required audience by age, place of residence, interests. There is also an opportunity to use SMM not only for promoting goods and services, but also for attracting audience to various media and organisations, which can be achieved by creating a social media profile and interacting directly with the target audience.	SMM means activity on resources that do not belong to the advertiser. There is a risk that profiles, groups, pages in which money, time and effort are invested will be hacked, blocked or deleted at any time.
Contextual advertising	Contextual advertising is keyword-bound. The most popular channels of contextual advertising are Google Adwords and Yandex Direct.	High efficiency due to the fact that contextual advertising can be targeted: it is aimed at the target audience, which, through certain queries on the Internet, shows interest in a specific type of goods, works or services.	Contextual ads stop showing as soon as the ad budget drops to zero. In addition, the price per click is unstable - despite the fact that contextual advertising systems give a budget forecast, these are always approximate figures.

End of table 1

1	2	3	4
Banner advertising	One of the types of display advertising. A banner is an advertising image that, when clicked, leads to the advertiser's website.	Large reach, increasing brand awareness, and focus on the target audience, since the advertiser independently chooses which resources to place his advertisement on.	Large budget, several times higher than the budget of contextual advertising, as well as frequently wrong choice of target audience, since the total number of website visitors can significantly differ from the number included in the target audience of the advertiser.
E-mail marketing	A way to promote products or services using email newsletters. This digital marketing tool can be used effectively when the organization already has a customer base, which is necessary to keep in touch with and notify about new offers.	High return on investment, efficiency in attracting new customers, integration with other communication channels.	A contact base of customers is required; the system's frequent recognition of emails as spam, as well as a decrease in the level of email use, especially among a young audience.
Content-marketing	A long-term marketing strategy aimed at attracting the target audience and connecting with it. For these purposes, marketers create and distribute relevant content.	Allows not only attracting new clients, but also keeping the existing ones. According to Content Marketing Institute research, content marketing attracts three times as many leads as outbound marketing and is 62% less expensive.	Takes a long time to attract the first customers (3-6 months). It requires constant work, and does not guarantee the result - for example, in the case of a small business it will be much more efficient to invest in traditional advertising.

The variety of digital marketing tools can make it challenging for advertisers to choose the best channel for their ad distribution. Therefore, before resorting to one of the above tools, it is necessary to conduct a comprehensive analysis of target audience in order to determine the best way to interact with it.

In Belarus, the digital advertising market is still developing. A study conducted by the IAB Belarus showed that Internet advertising budgets are growing every year. Among 51 companies surveyed, 88.2% confirmed that the share of investments in online advertising increased in 2018 and 2019. We also analysed the most frequently used online advertising channels. Among the leaders were named advertising on social networks (94.12% of the surveyed companies used it), banner advertising (86.27%), advertising articles (80%) and mobile advertising (78.43%). It is noted that the cost of online advertising has a significant share in the total marketing budget of the brand - for most of the surveyed companies, this value was in the range from 40 to 75%. Among the factors hindering the development of online advertising, the respondents named "the inability of this channel to solve certain marketing problems", "high cost" [3]. However, companies continue to use online advertising channels due to their high effectiveness, good measurability of results and high audience coverage.

Among the changes and innovations desired by brands, there were mentioned an increase in the transparency of cooperation with sites, and the need for an effective audit of the results of campaigns on the Internet. The market still has a problem with advertisers' trust in data from sites. The painful topic of the lack of technical specialists and quality training is highlighted so that marketers can keep up with the rapid changes in the Internet environment.

In Belarus, in 2019, the volume of media investments reached $ 114.4 million. According to this indicator, there is a steady positive trend - compared to 2016, the volume of media investments increased by $ 42.5 million. Dynamics of the volume of media investment in Belarus in 2010-2019 is illustrated in Figure 1.

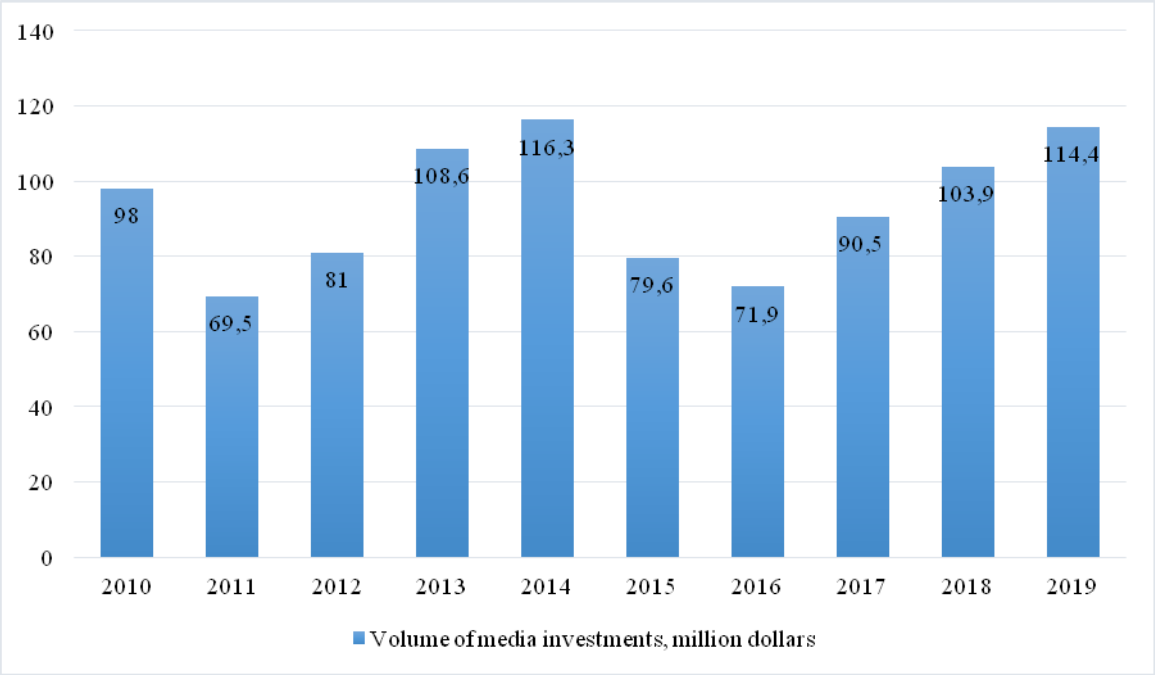


Fig. 1. – Dynamics of the volume of media investments in Belarus for 2010-2019, million dollars

In 2019, $ 44.9 million was invested in the Internet as an advertising channel. In the overall structure of advertising costs, contextual advertising takes 63% and media advertising – 37%. Within display advertising, about half of the investments were in banner advertising, followed by PR and articles and video advertising. In total, $ 15.9 million was invested in display advertising.

The growth in the use of Internet platforms as advertising channels in Belarus is displayed in the increase in the volume of media investments. According to the Association of Interactive Advertising and leading Belarusian sales houses, the volume of media investments in the Internet as an advertising channel in 2019 amounted to $ 44.9 million, while advertisers invested $ 41 million in promotion on television.

One of the main trends in the digital advertising market in Belarus is an increase in investments in online advertising, a growth in their share in the total volume of investments, an increase in mobile advertising, as well as the possibility of transferring buyers from offline to online sales. In addition, a significant stimulus to the development of the online advertising market was the pandemic in 2020, which led to the transfer of many processes to the online format. This was reflected not only in a decrease in the prevalence of advertising in traditional formats, but also in an increase in the number of visitors of many Internet resources, due to which the reach of placed advertising publications increased.

In order to predict the development of the digital advertising market, it is necessary to identify its current key trends. Undoubtedly, one of these trends is the use of social networks as a promotion channel. There are 7.82 million Internet users per 9.5 million inhabitants of Belarus (penetration 82.8%). Only 41% of the population uses social networks (3.9 million). On average, in Western Europe at the beginning of 2021, this indicator was at the level of 65%. Thus, Belarus lags behind the regional averages. For comparison, the average for all countries at the beginning of 2021 is 53.6%. The absolute increase in comparison with the beginning of 2020 amounted to 13.2%, which indicates an active growth in the number of users of social networks, and, consequently, the prospects for investment in this advertising channel.

Another trend that will remain relevant for a long time is mobile marketing. Here are a few indicators as evidence:

- 55.7% of all Internet traffic comes from mobile devices;
- 52.8% of the time spent by users on the Internet was spent on mobile devices;
- The number of mobile device users in 2021 reached 4.32 billion;
- 92.6% of all Internet users use it through mobile devices [4].

The significance of these indicators for digital marketing is as follows: the predominance of mobile Internet users in the total number of Internet users indicates the need to adapt all types of online advertising for mobile devices. Advertisers who ignore this trend run the risk of losing customers.

The main directions of development of the digital advertising market at this stage are the development of legislation in the field of Internet services provision, the training of specialists in the field of Internet market-

ing who know the specifics of the Belarusian market, as well as the stimulation of the development of small businesses in this area.

An analysis of the current state of the digital advertising market in Belarus showed that this area is developing dynamically, which is accompanied by an increase in the volume of investments attracted to it. This is caused by significant advantages of digital advertising over traditional forms, including high efficiency, significant coverage, transparency of investments, and others. At the same time, the digital advertising market faces various challenges in the course of its development. The distrust of some brands in online advertising is due to the relative novelty of this concept, high costs, as well as the difficulty of choosing the optimal channel for advertising distribution. Despite this, in the context of the penetration of information technology into all spheres of activity, the digital advertising market continues to develop steadily, and in 2021 specialists expect both an increase in the volume of investments in online advertising, as well as an increase in coverage rates, views of advertising publications and site visits.

REFERENCES

1. Стратегия развития информатизации в Республике Беларусь на 2016 – 2022 годы.
2. Кузякин, А.П. Реклама и PR в мировой экономике: учеб. пособие / А.П. Кузякин, М.А. Семичев. – М.: Велби, 2002. – 320 с.
3. Какие факторы драйвят затраты и чего не хватает на digital-рынке: завершено исследование Digital Advertisers Barometer Belarus [Электронный ресурс]. – Режим доступа: https://iab.by/digital-advertisers-barometer-belarus/?fbclid=IwAR1EnHCFnx6-kcGFtTqaXTOXJ0jFm3Yj8pqy4nye553G8_3IgzoTAQj_z2Q. – Дата доступа: 04.04.2021.
4. Digital 2021: Global overview report [Электронный ресурс]. – Режим доступа: https://datareportal.com/reports/digital-2021-global-overview-report. – Дата доступа: 10.04.2021.

Economics

UDC 330.342.146:504

SUSTAINABLE BUSINESS: ENVIRONMENTAL ASPECT

A. MIADZVEDZ
Polotsk State University, Belarus

The article examines the interconnection between the economy and the environment through sustainable business. The types of social responsibility of business and its levels are considered, as well as the author's definition is given.

Social and environmental responsibility of business is a conscious and motivated participation of business in a variety of activities aimed at preventing and minimizing negative impacts on the environment, rational use of natural resources, saving raw materials and energy resources in the process of economic activities, involving waste in economic circulation, preventing accidents and emergency situations, support for measures to protect health, preserve cultural and historical heritage, biodiversity and specially protected natural areas, preserve endangered biological species. Social responsibility is viewed as the responsibility of business entities for the impact of the results of their activities on the economy, society, the environment, while their behavior contributes to the socio-economic development of the territories. Three existing approaches to understanding corporate social responsibility (fig. 1) should be considered.

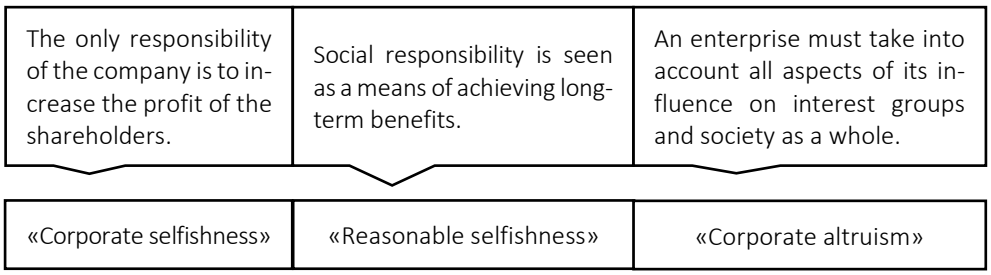


Fig.1. – Classification of approaches to understanding the approaches of corporate social responsibility of an enterprise

Source: [1].

It follows that the key point of corporate social responsibility is its voluntary nature. That is, enterprises, organizations, companies independently make decisions to behave in this way, to follow their chosen rules and those activities that are desirable from the point of view of the social, environmental and economic spheres, which are directly related to their activities, but go beyond the legal minimum.

Business social responsibility is multi-level:

1. The first - the basic level of social responsibility reflects the «company of owners» model that has become widespread in the Anglo-Saxon countries. Its requirements are in the conscientious fulfillment of its direct obligations to society and the state:

– regular payment of wages, the amount of which should ensure the normal reproduction of labor of various qualifications;

– timely payment of taxes;

– compliance with labor laws;

– ensuring established product quality standards.

2. The second – development of partner intra-firm relations, implying direct consideration of the interests of employees on the basis of the negotiation process. This level guarantees the provision of a certain set of benefits and social services to employees, that is, the implementation of targeted social investments, which in turn can be divided into two types:

– investments in human capital, including vocational training, retraining and advanced training of personnel, in improving the organization and enriching the content of labor, as well as in labor protection and health of employees;

– investments that ensure the increase and guarantees of the retirement level of employees, improvement of housing conditions, recreational social programs.

3. The third, highest level of corporate social responsibility involves charitable activities.

Depending on the direction of social initiatives, organizations distinguish between internal and external social responsibility. Internal corporate social responsibility is in building relationships between owners and management with employees of the enterprise. External responsibility is social activity aimed at the needs of society. The forms of implementation of initiatives of internal and external social responsibility carried out by large corporations and small businesses, differ. [2].

Hence, internal social responsibility includes the payment of wages, investment in the human capital of employees, assistance to employees in critical situations, and labor safety. External social responsibility includes promoting environmental protection, sponsorship and corporate charity, responsibility to consumers of goods and services.

There are the following types of business social responsibility:

– Improvement of the company's image, growth of reputation;
– Advertising of a product or service;
– Staff development;
– Labor productivity growth;
– Maintaining social stability in society;
– Coverage of the company's activities in the media;
– The possibility of attracting investment capital for socially responsible companies is higher than for other companies.

So, what is the relationship between economics and ecology in socially responsible business? In economics, the responsibility of an enterprise is to constantly improve the consumer properties and quality of its products. A number of experts believe that any company is socially responsible if it produces a product that is then bought, i.e. satisfies a specific economic need of society.

The environmental component includes new technologies and measures to save resources, reduce harmful emissions in all forms, etc. If an enterprise implements programs of this kind, it is considered socially responsible. This component also assumes that the company produces an environmentally friendly product, without ingredients of genetic engineering, etc.

The social component involves the implementation of the company's social policy: within the framework of internal corporate social responsibility, this is the development of its own personnel, its social security and qualifications, within the framework of external corporate social responsibility they are charity, sponsorship, social projects and investments [3].

Socially responsible business is a very important element of the modern economy. As natural resources are limited and human-caused harm to nature is caused daily, a positive effect can be achieved only by joint efforts of the state and the private sector.

REFERENCES

1. Лабаджян М.Г., Каспарова А.Ю. Понятие социальной ответственности бизнеса / М.Г. Лабаджян, А.Ю. Каспарова // Вестник Омского Университета. - 2014. - №1. - С. 178-182.
2. Брусенцова Л.С., Брусенцов Д.В. Социальная ответственность малого бизнеса: актуальность, ограничения, формы взаимодействия со стейкхолдерами // Управление экономикой: методы, модели, технологии. 14-я международная конференция: сборник трудов. Уфа. 2014. С.84-87.
3. Симхович В.А., Данилова Е.А., Романова С.П. Социальная ответственность современного белорусского бизнеса / В.А. Симхович, Е.А. Данилова, С.П. Романова. – Мн., 2012. – 125 с.

Economics

UDC 336.01

THEORETICAL ASPECTS OF EVALUATING THE EFFICIENCY OF A COMMERCIAL BANK

R. DANTSOU, I. STROHANAVA
Polotsk State University, Belarus

Currently, not all the issues of financial management in the bank have been worked out by domestic authors in sufficient depth, which is due to the specifics of the commercial bank as the only economic entity that systematically manages all the functions of money.

Introduction. The study of the efficiency of commercial banks is not only a matter of interest but also necessary in the conditions of modern reality. Banks are institutions that accumulate the monetary resources of customers, stimulate economic growth, and increase the overall well-being of the nation. The efficiency of the bank and the banking system as a whole largely determines the potential for economic growth of the country.

The purpose of this research is to study the approaches of different authors to the definition of the concept "efficiency" and the subsequent synthesis of our own concept of "efficiency".

The main part. Commercial banks play a huge role in the functioning of the credit system. They accumulate the main share of credit resources, provide customers with a full range of financial services, including loan granting, deposit taking, settlements, buying, selling and storing securities, foreign currency, etc. [1].

Modern commercial banks are credit organizations that have the exclusive right to collectively attract funds from legal entities and individuals to deposits, make settlements and place funds on their own behalf and at their own expense on the terms of repayment, payment, and urgency [2].

Commercial banks are under the constant supervision of the central bank and other financial institutions. Banking supervision is based on a licensing system and serves as a means of verifying commercial banks ' compliance with laws and regulations. The financial statements of commercial banks are subject to audits by external auditors, and their statements give credibility to the reporting and strengthen confidence in the banking system [3].

Commercial banks pay great attention to the analysis of their activities. In the banking business, the concept of "highly profitable banking" has become widespread with the following principles [4]:

– income maximization – involves maximizing the loan income and income on securities, etc., maintaining a flexible structure of assets adapted to changes in the interest rate;

– cost minimization – involves optimizing the structure of liabilities, minimizing loan losses, controlling current expenses, etc.;

– efficient bank management – is a system of management related to strategic and tactical planning, analysis, regulation, control of the bank's activities, financial management, marketing activities, as well as personnel management, aimed to ensure the efficient performance of a commercial bank.

According to western economists, the stable development of a commercial bank over the long term should ensure the development of the bank's global strategy and strategic goals and objectives for all areas of activity and structural divisions of the bank.

There are many interpretations of the concept "efficiency" in modern scientific literature (table 1).

Table 1. – The authors' approaches to the definition of the concept «efficiency»

S. Moiseev, Yu. Buinov [5]	Maximizing service delivery with specified resources
S. Moiseev, Yu. Buinov [5]	Minimum use of a combination of resources for a given amount of services
K. V. Tolchin [6]	The ratio of costs and resources to the results obtained from their use, as well as the socio-economic category that reflects the influence of the ways of organizing the work of the process participants on the level of results achieved by them
R. Bashirov [7]	The author's concept of the efficiency of commercial banks is related to the categories of income, costs and profits
O. I. Lavrushin [8]	The efficiency of banking activity – is the ability of a credit institution to achieve its goal in accordance with the economic and socio-cultural norms of society
I. V. Klyuev [9]	A polysemantic concept that reflects various aspects of a commercial bank's activities: the ratio of results to costs, goals, needs, and values
M. N. Andryushchenko [10]	The measure of possibility in terms of its proximity to the most appropriate, necessary person (result)
Ya. Zelenevsky [11]	The ratio of the total value of the actual results of the activity to the expected total value of the corresponding goals
Modern Economic Dictionary [12]	An economic category that characterizes the efficiency of production in comparison with production resources and social needs

As a result of the analysis of the approaches outlined in Table 1, these concepts can eventually be brought to two main definitions:

– Efficiency is the ratio of the cost of resources and the results obtained from their use;

– Efficiency is a socio-economic category that shows the influence of the ways of organizing the work of the participants in the process on the results achieved by them.

The assessment of the efficiency of banking activities is most often carried out using the first provision, according to which the efficiency of a bank or banking system is calculated basing on the proximity of the values of the performance indicators of each bank (for example: costs, profits, etc.) to a certain, predetermined efficiency limit.

Thus, the author concludes that the efficiency of a commercial bank is not only the results of its activities, but also an efficient management system based on the formation of a scientifically based strategy of the bank's activities (a system of goals of the bank's activities, ranked by significance and value) and control over the process of its implementation.

Maximizing profits while minimizing costs is the main goal of a commercial bank. Profit or loss received by the bank are the indicators that concentrate the result of various passive and active operations of the bank and reflect the influence of all factors affecting the bank's activities [13].

The profit of a commercial bank is the main financial result of the bank's activities, defined as the difference between all income and expenses. The generation and distribution of profit of a commercial bank is determined by the specifics of banking activities, the turnover of income and expenses of the bank.

In the practice of the bank's activity, several profit indicators are used. The difference between the amount of gross income and the amount of expenses attributed in accordance with the current regulations to the bank's expenses is called the balance sheet or gross profit (loss).

The bank's balance sheet profit is divided as follows:

1) operating profit, defined as the difference between the operating income and expenses;
2) interest income, defined as the excess of interest income received by the bank over interest expenses;
3) commission income, defined as the excess of commission income over commission expenses;
4) profit from operations in the financial markets, defined as the difference between the income and expenses from these operations;
5) other types of profit derived from other activities.

The largest share in profit is operating profit, and percentage profit is the largest share in operating profit [14].

In other words, as an economic category, "efficiency" describes qualitative and quantitative parameters of the performance of activities. Currently, there is a tendency to identify the concept of efficiency with profitability or cost-effectiveness. Although the indicators of profitability and cost-effectiveness are important indicators of the bank's activities, which allow us to assess the bank's performance, however, they do not always objectively reflect information about the level of efficiency of the bank's activities and the ability of the resources invested by the bank to generate income.

Conclusion. Thus, the concept "efficiency" reflects the relation between various aspects of the activity: result and costs, result and goals, result and needs, result and values. Therefore, the criteria for the bank's efficiency can be identified as the financial results of its activities, the performance, the entire set of indicators of the financial condition achieved by the bank in the course of its activities.

REFERENCES

1. Функции коммерческих банков их организационная и управленческая структура [Электронный ресурс]. – 2014. – Режим доступа: http://uchebnik–online.com/soderzhanie/textbook_139.html. – Дата доступа: 25.03.2021.
2. Коммерческие банки России [Электронный ресурс]. – 2014. – Режим доступа: http://www.finekon.ru/komm%20banki.php. – Дата доступа: 25.03.2021.
3. Коробова, Г.Г. Банковское дело: учебник/ Г.Г. Коробова. – М.: Экономист, 2006 – 766 с.
4. Киселева, И.А. Модели банковских рисков: учебное пособие / И.А. Киселева. – М. : МЭСИ, 2001. – 155 с.
5. Моисеев С., Буйнов Ю. Эффективность российских банков // аналитический отчет / [С.Р. Моисеев, Д.А. Круглов, М.М. Кузьмин и др.]. – 2008.
6. Толчин К.В. Об оценке эффективности деятельности банков // Деньги и кредит. 2007. № 9.
7. Баширов Р. Оценка эффективности деятельности коммерческих банков в регионах // РИСК: Ресурсы, информация, снабжение, конкуренция. 2011. № 4.
8. Лаврушин О.И. Деньги. Кредит. Банки – учебное пособие: КНОРУС, 2014. 448 с.
9. Клюев И.В. Эффективность деятельности коммерческого банка и экономические интересы пользователей информации // Инновационное развитие экономики. 2012. № 6.

10. Андрющенко, М. Н. Понятие эффективности и его философский смысл / М. Н. Андрющенко // Философские и социологические исследования: Учен. зап. каф. общ. наук г. Ленинграда. - Философия. - Вып. 12. - Л., 1971. - С. 42 - 53.
11. Зеленевский Я. Организация трудовых коллективов / Я. Зеленевский. – М., 1976. – 157 с.
12. Райзберг Б.А., Лозовский Л.Ш., Стародубцева Е.Б. Современный экономический словарь. М., 2006. С. 192; Лопатников Л.И. Экономико-математический словарь. М., 2003. С. 167.
13. Коробова, Г.Г. Банковское дело: учебник / Г.Г. Коробова. – М.: Экономисть, 2006 – 766.
14. Формирование и использование прибыли банка [Электронный ресурс]. – 2015. – Режим доступа: http://banki-uchebnik.ru/finansovyj-analiz/21-pribyl-kommercheskogo-banka. – Дата доступа: 30.03.2021.

UDC 004

DIGITAL BANKING DEVELOPMENT TRENDS

Y. BASHKIROVA, I. STROGANOVA
Polotsk State University, Belarus

The article discusses the features of digital banking, its advantages and models. It also suggests ways to improve and develop digitalization in the banking sector.

Speaking about digital banking, we can say that the main task of digital banking is to change the behavior of the bank itself. The Bank is always where the customer needs it: in social networks, mobile devices and information services, in e-business and the Internet of Things, i.e. anywhere in the digital space. It is safe to consider digital banking as a new approach to customer service through digital technologies. The bank must respond to customer requests in real time and wherever the customer may need the bank's services.

The minimization of organizational costs should be recognized as a clear advantage of neobanks over other banks. Due to it, the speed of service increases, cheaper tariffs appear, and the client has an opportunity to minimize the duration of operations.

The main advantages of digital banking are:

1) business efficiency. Digital platforms not only improve customer engagement and meet customer needs faster, but also provide more efficient internal functions. While banks have been at the forefront of digital technology in the consumer market for decades, they haven't taken full advantage of middleware to accelerate productivity;

2) cost saving. One of the keys to reducing bank costs is automated applications that replace excess manual labor. According to McKinsey & Company, traditional banking processing is expensive, slow, and prone to human error. Relying on people and paper, as well as occupying office space, increases energy and storage costs. Digital platforms can reduce costs in the future through the synergy of better data and faster response to market changes;

3) increased accuracy. Traditional banks, which rely mainly on paper processing, can have an error rate of up to 40 %, which requires reworking. Combined with the lack of IT integration between the branch and the back office staff, this problem reduces business efficiency. By simplifying the verification process, it is easier to implement IT solutions with business software, resulting in more accurate accounting reporting. Financial accuracy is crucial for banks to comply with government regulations;

4) improving competitiveness. Digital solutions help manage marketing lists, enabling banks to reach wider markets and establish closer relationships with high-tech consumers. CRM platforms can track customer history and provide quick access to email and other forms of online communication. It is effective for executing customer reward programs that can improve loyalty and satisfaction.

There are several ways to build digital banking. Their difference is in the principles of the organization of a digital bank and the goals of its creation, which allows us to distinguish some models of digital banking.

The first model is called "a digital bank brand". It involves the creation of a traditional bank's own separate brand for building a digital business. This method is suitable for those banks that are afraid of losing customers, switching completely to a digital business model. By creating a new brand, banks strive to retain old customers who are used to using traditional banking, and, at the same time, attract new customers who are ready for remote and high-tech banking services. Examples: FRANK (OCBC) in Singapore and LKXA of CaixaBank in Spain [2].

The second model is called "a digital bank channel" (digital banking channel) and its essence is to create additional digital service channels by the bank in addition to the existing ones. A bank that uses this model increases the capabilities of its customers by offering them different ways and channels for comfortable service. Examples: Simple and Moven in the US.

The third model is called "a digital bank subsidiary". This model is interesting because the subsidiary bank was originally created as a digital bank. If the bank cannot immediately respond to the changing needs of customers, it becomes necessary to create and use a separate digital bank. Example: Hello Bank (BNP Paribas).

The fourth model is called "a digital native bank" (true digital bank). This model includes banks that initially position themselves as digital and build their activities using digital technologies. Initially, a digital bank implies servicing without bank offices. However, customers of such banks interact with them through digital channels. Example: Fidor Bank in Germany and Tangerine in Canada [1].

Ultimately," says Shubh Saumya, a New York-based BCG partner and coauthor of the report, "bank leaders know that digital technology and changing customer behaviors will take the industry in new directions. But many of them no longer think that disintermediation is likely in the near term. They expect an inflection point that will signal it's time to move faster. That inflection point, however, is already here."

The report also explains BCG's recommended action steps for banks in detail.

Drive to scale. Scale—sheer size—which allows for operating at lower unit costs, has always been a source of competitive advantage for banks. Today, however, scale is more important than ever before: it gives banks a much greater ability to invest in marketing and technology. Perhaps most critically, scale today means larger customer bases and more data. These are huge sources of advantage.

Digitize end-to-end customer journeys. Banking products and services are notoriously friction filled and tedious, entangling customers in the machinery of the banks' legal and risk policies, P&L structures, and legacy IT systems. Although most banks have started to redesign end-to-end customer journeys—precisely to eliminate these pain points and identify better pathways—they must work to overcome the snags inevitably presented by bank operating models, processes, and product silos.

Leverage big data, analytics, and AI. This is the Holy Grail—the use of data and analytics to make banking easier and more personalized for customers, as well as more profitable for banks. When combined with big data, AI can, much earlier than traditional methods, help banks identify customers who might leave for another bank — in many cases, before the customer even realizes that he or she is unhappy.

Pursue partnerships to increase capabilities and scale. For the things they cannot do well on their own, banks must develop a partnership strategy. Many banks have already entered into accords with fintechs, generally by making minority investments. Another possibility is to partner with one of the digital giants directly. This may seem like a risky move, but for a bank with a unique attribute or capability that a digital giant might covet, there could be a negotiation of peers—and a successful partnership.

Adopt new ways of working. Most banks haven't fundamentally changed the way they approach their work in decades. This is certainly true in software development. Sequential "waterfall" methods, misalignment of business and technology organizations, and emphasis on product features over customer benefits often produce disappointing results. Banks need to rethink this aspect of their work. In particular, they would do well to move to agile approaches.

Attract and retain digital talent. Even the largest banks, those with the amplest resources, have struggled to recruit and retain the talent they need to compete in a digital age. Although some IT workers currently working in banks may be able to develop the needed skills through dedicated training and coaching, this is also an area in which it will make sense to partner with, or even acquire, high-caliber fintechs or boutique engineering firms.

Simplify technology and data infrastructure. Having the right technology and data infrastructure is a pre-requisite to digital transformation. To provide the digital experience that customers expect, banks will need to aggressively adopt the technology paradigms of digitally native companies. This can happen only if banks drop the vertically integrated legacy technology stacks that they're using today and opt for horizontally layered, plat-form-based technologies.

Ensure cybersecurity resilience. This is a condition not only for succeeding in a digital age, but also for surviving it. All of the good things that banks are trying to do with the help of digital technology — create step changes in convenience, turn their customers into advocates, and operate more efficiently — can be undone by security breaches. A best practice for banks' chief risk officers is to identify best-of-breed providers and to Global Risk 2019: Creating a More Digital, Resilient Bank [2].

What lies ahead?

It is seemingly easy to forget that mankind is still very early in the developments when it comes to the internet. However, in this short period, its rise to prominence and the broad digitization of the world has left us with a very eventful timeline.

If the last decade serves as a reference point, one can expect further and intensifying competition among tech companies. After all, the reward—winning in today's digital economy—reaps much greater value.

REFERENCES

1. L. A. SHAK, K. A. GREBENEVA DIGITAL BANKING: PROBLEMS AND PROSPECTS OF DEVELOPMENT. — [Electronic resource]. — Mode of Access: http://e.biblio.bru.by/bitstream/handle/1212121212/9196/47.pdf?sequence=1&isAllowed=y.
2. As Digital Powerhouses Hover, Banks Must Take the Offensive. — [Electronic resource]. — Mode of Access: https://www.bcg.com/press/25july19-banks-brace-for-a-new-wave-of-digital-disruption.

UDC 336 .011

APPROACHES TO UNDERSTANDING THE DEFINITIONS OF DERIVATIVES

H. SHYNKEVICH, I. STROHANAVA
Polotsk State University, Belarus

The modern economy is characterized by significant price fluctuations for many types of goods. Producers and consumers are interested in creating effective mechanisms that can protect them from unexpected price changes and minimize negative economic consequences. Currently, the derivatives market in the Republic of Belarus is immature in terms of both the Belarusian Currency and Stock Exchange and OTC market.

In any business, whether it is an investment fund or an agricultural producer, there is always a financial risk. They can be related to the following: the sale of manufactured products, the risk of depreciation of capital invested in certain assets, the purchase of assets. This means that in the course of their activities, companies, other legal entities and individuals face the possibility that as a result of their business they will take a loss or the profit will not be as they expected, due to unforeseen changes in the prices of the assets at which the transaction is completed. Risk includes both the possibility of losing and the possibility of winning, but people, in most cases, are not afraid of risk, and therefore they are willing to give up more profits to reduce the risk of losing.

Therefore, the market of derivative financial instruments today is an actively developing and significant part of the financial market. Unlike the Republic of Belarus, foreign countries actively conduct transactions with derivatives along with classical financial instruments and get quite a lot of advantages from their use. Focusing on the prevalence of the use of derivative financial instruments (DFI) in the Belarusian financial market, we also examine the prospects for the development of this segment of the financial market in the current economic conditions of the Belarusian economy. This issue is relevant today, as it can actively contribute to the development of the financial market and the country's economy as a whole. There are different interpretations of derivative financial instruments. For example, in the United States, a derivative is a contract in which the price is derived from the value of one or more underlying securities, debt instruments, indices, commodities, and other derivatives. In the Russian Federal Law "On the Securities Market", DFI is also defined as a contract. In European countries (Germany), derivatives are considered as rights that are traded on the market, and the price is directly or indirectly related to the movement of the market value of the currency.

For this purpose, financial instruments, derivatives or derivatives market instruments, hedging instruments, etc. were created. Their definitions are presented in the table:

Table 1. – Definitions of the "Derivatives"

№	Definition	Source of information
1	A derivative financial instrument is a derivative security and (or) other financial instrument, the result of which is the acquisition of the right and (or) the establishment of the obligation to buy or sell the underlying asset. The underlying assets of a derivative financial instrument may be cash, securities, other currency values, precious metals, interest rates, credit resources, stock indices, standardized services, goods and other assets that are the subject of transactions made on the territory of the Republic of Belarus and (or) abroad	[1]
2	A derivative financial instrument is a contract that has arisen when an asset is acquired/sold in the future and with the desire to insure (hedge) the risks of the buyer/seller	[2, p. 132]
3	A derivative financial instrument is a financial instrument whose prices or terms are based on the corresponding parameters of another financial instrument, which will be the base one.	[3]
4	A derivative is a financial instrument whose value is derived from the value and characteristics of another security (the underlying asset). The value of a derivative changes following changes in the interest rate, the price of a commodity or security, the exchange rate, the price index or rates.	[4, p. 12]
5	A derivative is a marketable security whose value is derived from the actual or estimated price of an underlying asset (commodity, security, or currency). Derivatives include futures contracts, stock market index futures, options, and swaps. Stock market derivatives (derivatives) are used for hedging, risk reduction, or speculative purposes.	[5, p. 341]

Source: compiled by the author on the basis of [1, 2, 3, 4, 5].

After analyzing these definitions, we can make a clear conclusion that there are no significant differences in the definitions we have chosen, and the definitions we are considering are more consistent with each other. The main DFIs of the derivatives market, designed to hedge currency risks, can be currency forwards, currency futures, currency options and swaps.

Based on the results of the analysis, we can give the author's definition of the term derivative financial instruments (DFI). DFI are certain rights/obligations, or contracts that are most often not formalized to the extent of a security, but can be presented in its form, namely: a future, forward, option, swap. Which, in turn, allow you to hedge risks, divide them into financial transactions, and they can also be a tool for obtaining speculative profits. In the further analysis, we will adhere to the author's definition of derivative financial instruments.

An important point here is that the presence in the economy of the futures market (the market of the basic DFI asset) and the derivatives market of the DFI, absolutely different from the point of view of their functioning mechanisms, leads to the emergence of a hedging phenomenon, in the course of which the results of two transactions - a forward transaction with the underlying asset and transactions with DFI are balanced.

We can state that the derivative instruments, in addition to their stated above main purpose to fix the future price, have one more additional purpose – to hedge the unfavorable development of the price situation (exchange rate volatility) in the derivatives market.

REFERENCES

1. Постановление Правления Национального банка Республики Беларусь, 28 сентября 2006 г. № 137 // Официальный сайт Национального Банка Республики Беларусь. – Режим доступа: https://www.nbrb.by/legislation/documents/pp_137_47-19.pdf. – Дата доступа: 12.03.2021.
2. Волегова Н. В. Учет производных финансовых инструментов инвесторами: учебник / Н. В. Волегова, – М.РЕД-В – М. 2012. – 531 С. с.132.
3. Постановление Совета Министров Республики Беларусь и Национального Банка Республики Беларусь 30 декабря 2016 г. № 1119/35. – Режим доступа: http://government.by/upload/docs/file784047cb82ebb230.PDF. – Дата доступа: 12.03.2021.
4. А.О. Тихонов, С.Л. Кисель учебно-методическое пособие «Форвард, фьючерс, опцион на финансовым рынке» е / А. О. Тихонов , С. Л. Кисель. - Минск : Мисанта, 2007. - 120 с.
5. Королёв, М.И. Экономика. Риск. Защита: словарь-справ. / М.И. Королёв. – М.: Анкил, 2008. – 832 с. 341.

UDC 336.77

THE NATURE, TYPES, MAIN FACTORS AND COMPONENTS OF THE BANK'S CREDIT RISK

K. BEKISH, I. STROHANAVA
Polotsk State University, Belarus

Currently, credit risk is the most significant for Belarusian banks. The issue of unserved assets of banks is in the focus of attention of the regulator-the National Bank of the Republic of Belarus.

Introduction. Credit risk is the most significant and widespread in the banking sector. It has a negative impact on the stability of the banking sector. Therefore, the process of careful identification and management of credit risk deserves special attention.

The main part. The table below will discuss the authors ' different approaches to understanding the definition of "credit risk".

Table. – Understanding the credit risk of various authors

Author(s)	Definition
National Bank of the Republic of Belarus [1]	Credit risk – the risk of the bank's losses (losses), non-receipt of planned income due to non-fulfillment, late or incomplete fulfillment by the debtor of financial and other property obligations to the bank in accordance with the terms of the agreement or the legislation.
I. V. Bernhardt, J. K. Colli [2]	Credit risk as a type of bank risk is unforeseen circumstances that may arise before the end of the loan repayment.
S. Rose Peter [2]	Credit risk – the probability that the value of the part of the Bank's assets, particularly loans, decrease or be reduced to zero.
L. L. Ong [2]	Credit risk is the risk of exposure to losses if the counterparty does not fulfill its obligations in due time.
Z. Bodi, R. Merton [3]	Credit risk – the risk of non-payment by the borrower (issuer) of the principal debt and interest due to the lender (investor) within the term established by the terms of the security issue (bonds, deposit and savings certificates, promissory notes, government obligations, etc.), as well as on preferred shares (in terms of fixed obligations to pay dividends), since the owners of such shares do not claim to receive part of the issuer's assets in the event of bankruptcy, as provided for the owners of ordinary shares.
The Central Bank of the Russian Federation [4]	Credit risk – the risk of losses to a credit institution as a result of non-performance, improper performance, late or incomplete performance by the debtor of financial obligations to the credit institution in accordance with the terms of the agreement.
O. I. Lavrushin [5]	Credit risk is the situation with the loan, not from other economic forms, not associated with the result of the activities (possibility, probability, risk of the occurrence of an event), and the activity that can lead to the desired event.
Y. A. Babicheva [6]	Credit risk in the narrow sense is an existing lender for the risk of non-payment by the borrower of principal and interest.
H. V. Gruening, S. B. Bratanovich [7]	Credit risk is the risk that the debtor will not be able to make interest payments or pay the principal amount of the loan in accordance with the terms specified in the loan agreement.
Sinki J. [8]	Default risk (credit risk) - uncertainty associated with the possibility of paying interest and par value by the borrower.

Thus, all the presented definitions of the essence of credit risk can be divided into two groups based on the underlying feature: either the uncertainty of the occurrence of an unforeseen and unfavorable event, or the cause of the occurrence of an unforeseen and unfavorable event. But, the common point of all is that the risk is presented by the authors as an event that may or may not occur.

In this paper, the author accepts that credit risk is the possibility of a credit institution's losses (losses), non-receipt of planned income due to non-fulfillment, late, incomplete fulfillment by the debtor of financial or other property obligations to the credit institution in accordance with the terms of the agreement or the legislation of the Republic of Belarus, as well as as a result of the fulfillment of conditional obligations.

Based on the studied literature, the author determines the following classification of credit risk in the following areas [5, 9, 10]:

– Depending on the level of implementation of the analysis, the aggregate (general) and individual types of credit risk are distinguished.

Total (at the level of the bank's loan portfolio) credit risk involves the bank's assessment of the total volume of loans issued from the standpoint of the quality of the entire loan portfolio. The analysis of the total credit risk is based on the calculation of a number of indicators that characterize the amount of non-payments for various categories of loans.

Individual (at the level of each specific loan) credit risk characterizes the amount of risk inherent in an individual borrower. The analysis of individual risk requires the creation of multivariate models for its calculation, taking into account the influence of commercial, political, social and other external factors.

– Depending on the type of borrower, credit risk is divided into three types of risk: the risk of the country that occurs in foreign lending; the risk of lending to legal entities that occurs when financing the activities of enterprises, firms, banks, public organizations and other legal entities within the country; the risk of lending to individuals that occurs when the bank performs credit operations with the population within the country.

Each of the listed species can be subdivided into smaller subspecies. Thus, the country's risk consists of the risks of lending to foreign firms, foreign governments, and individuals residing in these states. The risk of lending to legal entities, depending on the form of ownership, types of activity, the company's affiliation to the sphere of material production or the provision of services to certain sectors of the economy, is represented by private subspecies. By belonging to a particular age group, the social stratum of the population should distinguish between the risks that arise when lending to young people, people of retirement age, as well as part of the population of active, working age with a stable income level.

– Depending on the nature of the manifestation, there are moral, business, and financial types of credit risk, as well as collateral risk.

Moral hazard is inherent in clients with a negative business reputation.

Business risk is assessed on the basis of data on the development of the industry in which the company operates and sells its products.

Financial risk is detected when analyzing the indicators of liquidity, profitability, turnover, composition and structure of the company's property, as well as the level and stability of the income of individuals.

The collateral risk is characterized by the occurrence of a possible threat of difficulties in the sale of the pledged property, if necessary, due to its low liquidity or excessive collateral value.

– Depending on the type of operation, credit risk is divided into risks that arise during loan, leasing, factoring operations, the provision of bank guarantees and guarantees, and the conclusion of transactions involving the use of promissory notes.

– According to the source of occurrence, external risks (related to the economic situation in the country and in the world as a whole and have an impact on the financial condition of customers-borrowers) and internal risks (related directly to the bank's activities) are separated.

– Depending on the scope of occurrence, there is the risk of the borrower and the risk of the lender.

– According to the level of risk, there is a moderate risk (0-25%), an increased risk (25-50%), a high risk (50-75%), and a critical risk (75-100%).

– By the scale of occurrence, we can distinguish risks at the micro level (associated with an individual client) and risks at the macro level (associated with the overall risk of the loan portfolio).

Most often, credit risk is associated with the probable future insolvency of a client who has financial obligations to the bank. The Basel Committee on Banking Supervision defines credit risk as possible losses of the bank due to the inability or unwillingness of the client to act in accordance with the terms of the contract and relates this risk not only to loans, but also to other obligations reflected both in the balance sheet (securities, etc.) and in off-balance sheet accounts (guarantees, guarantees). As a result of credit risk, the bank may incur losses, which, if the reserve is insufficient, lead to a decrease in regulatory capital.

The two main final estimates of credit risk are expected and unexpected losses. Expected losses are covered at the expense of formed reserves, unexpected losses on credit risks should be covered at the expense of the bank's own funds, which reduces its regulatory capital.

Credit risks have the ability to accumulate (concentrate). Providing large loans to a single borrower or a group of related borrowers, bank insiders, is one of the most common examples of credit risk concentration (this is what the central bank's prudential restrictions seek to prevent). A significant concentration of risks is possible due to preferential lending to certain sectors of the economy, or when lending to certain regions or countries.

Along with the provision of large loans, increased risks arise when providing loans to insiders. Insider loans are the provision of loans to individuals or legal entities associated with the bank through equity participation,

or having the ability to exercise direct or indirect control of the bank. In the absence of a way of paying attention to the provision of such loans, serious problems may arise due to biased judgments about the creditworthiness of borrowers. In these circumstances, the risk of losses may increase. When lending to insiders, the credit risk may increase due to non-compliance or insufficient compliance with the rules, procedures and procedures established by the bank for reviewing the borrower and making decisions on granting loans [11].

Conclusion. From this article, the author gave his own definition of the type of risk under consideration, namely, credit risk is the possibility of a credit institution's losses (losses), non-receipt of planned income due to non-performance, untimely, incomplete performance by the debtor of financial or other property obligations to the credit institution in accordance with the terms of the contract or the legislation of the Republic of Belarus, as well as as a result of the performance of conditional obligations.

Also, on the basis of the studied materials, the classification of credit risk in the following areas is considered and presented. So the credit risk is shared:

- depending on the level of implementation of the analysis;
- depending on the type of borrower;
- depending on the nature of the manifestation;
- depending on the type of operation;
- by the source of occurrence;
- by the level of risk;
- by the scale of occurrence.

REFERENCES

1. Инструкция об организации системы управления рисками в банках [Электрон. Ресурс]: постановление Правления Национального банка Республики Беларусь, 29октября 2012, № 550 – Режим доступа: nbrb.by/legislation/documents/pp_550_2016.pdf. – Дата доступа: 09.04.2021.
2. Роуз, Питер С. Банковский менеджмент / С. Роуз Питер; пер. с англ. со 2-го издания - М. : Дело Лтд, 1995. – 564 с.
3. Боди, З. Финансы / З. Боди, Р. Мертон; пер. с англ. - М. : Вильямс, 2000. – 592 с.
4. Мирошниченко, О. С. Кредитный риск и собственный капитал банка / О. С. Мирошниченко // Тюменский гос. у-т, 2011. – 433 с.
5. Лаврушин, О. И. Банковские риски: учебное пособие / под ред. О. И. Лаврушин, Н. И. Валенцева. – М. : КНОРУС, 2007. – 232 с.
6. Банковское дело: справ. пособие / под ред. Ю. А. Бабичевой. М. : Экономика, 1993.
7. Грюнинг, Х. ван, Брайович Братанович С. Анализ банковских рисков. Система оценки корпоративного управления и управления финансовым риском / Грюнинг Х. ван, С. Брайович Братанович. – М. : Весь Мир, 2004.
8. Синки Д. Финансовый менеджмент в коммерческом банке и в индустрии финансовых услуг/ Д. Синки. – М. : Альпина Бизнес Букс, 2007.
9. Барташевич, Н. И. Общие понятия банковских рисков: учеб. пособие / Н. И. Барташевич. – Гомель : Гомел. гос. ун-т им. Ф. Скорины, 2014. – 1 с.
10. Денежное обращение и кредит: [учебное пособие]: в 4 частях / под редакцией Г. И. Кравцовой. – Минск : БГЭУ, 2018.
11. Банковская аналитика: [учебное пособие] / под редакцией М. М. Ковалева, Е. Г. Господарика. – Минск : Издательский центр БГУ, 2020.

Economics

UDK 336.004

THE ESSENCE OF FINANCIAL TECHNOLOGIES IN THE BANKING

E. PETRISCHE, I. STROGANOVA
Polotsk State University, Belarus

The concept of "financial technology", or "fintech" is relatively new, so its generally accepted definition does not yet exist. The Oxford Dictionary defines fintech as computer programs and other technologies used to support or provide banking and financial services. The Basel Committee on Banking Supervision understands fintech as "technology-generated financial innovation that can lead to the creation of new business models, applications, processes or products for financial markets, institutions, or the production of financial services" [1].

Experts from Ernst & Young define financial technology as a collective term denoting the use of modern technologies in the field of financial services, such as lending, insurance, asset and capital management, money transfers and others. The concept of fintech is also used in relation to companies, usually startups, that actively use innovative, disruptive technologies in the provision of financial services in competition with traditional institutions, i.e. banks [2]. On the other hand, traditional banks, insurance and management companies are also actively introducing new technologies and from this point of view they are also participants in the fintech market. In a narrow sense, fintech is innovative financial services provided by small firms, in a broad sense, it is all financial innovations introduced in the market and by large and small organizations. The PwC survey provides the following interpretation: "financial technology is a dynamic segment at the intersection of the financial services and technology sectors, in which technology start-ups and new market entrants are applying innovative approaches to the products and services currently provided by the traditional financial services sector" [3, p. 5].

In our opinion, financial technology is most correctly viewed as a sector that intensively uses computer and Internet technologies in order to improve the quality of banking and financial services.

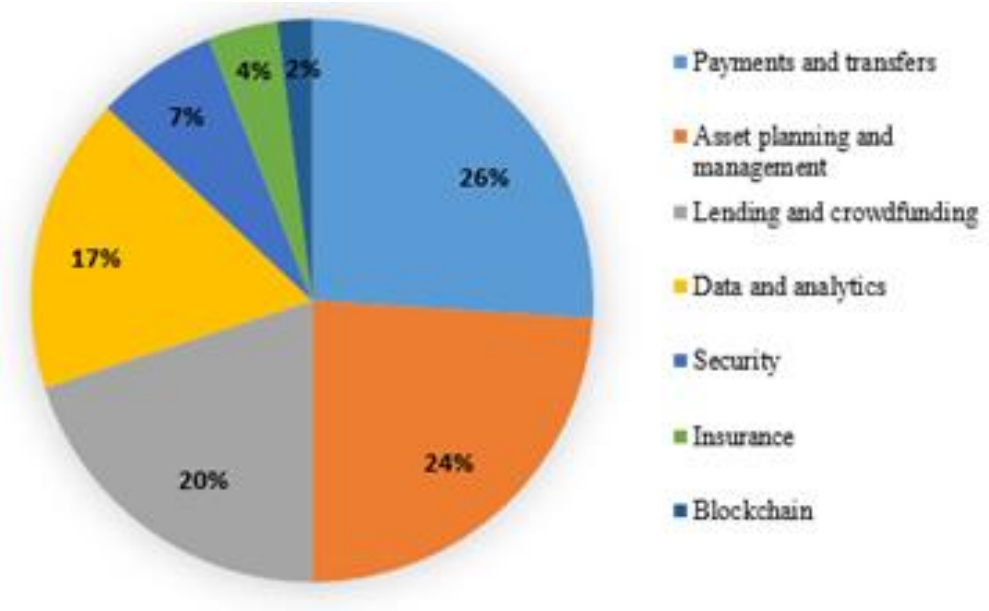


Fig. 1. – Distribution of investments in the financial services industry in the world in 2010-2016 by sector according to KPMG, % [2]

The most popular financial technology investments are payments and transfers, as well as investments and asset management (figure). These segments are the main sources of income for traditional banks, bringing in about 46% of all revenue.

The main areas of application of fintech in the banking sector are:

– instant lending operations, for example, "payday loans", which are not practiced by banks. One of the first firms in this market was the British Wonga. It issues loans up to £ 400 for a period of 1 to 35 days, and for borrowers who have repaid loans several times on time and in full, the maximum amount may be increased. At the same time, customers can receive money on a bank card or immediately make a payment (for example, for utilities);

– **P2P lending** as an alternative to bank retail lending, providing an opportunity for the population to borrow from other individuals and provide loans themselves. The popularity of this area is explained by lower interest rates compared to traditional loans. For example, OnDeck, valued at $ 1.8 billion during its IPO, offers loans of up to $ 500,000 at a rate of 5.99% per annum for a period of 3 to 36 months. In this case, the borrowing company must pay a commission in the amount of 2.5 to 4% of the amount of the loan received. In addition, it is possible to open a credit line for up to $ 100,000 at a rate of 13.99% per annum with a monthly service fee of $ 20 per month [5, p. 15];

– **electronic payment systems** that take interest or commission from the seller of the goods (borrower) who used the platform of this settlement system [6, p. 51]. Among the most famous fintech companies in the field of payments is PayPal, which is owned by the online auction Ebay, then Klarna, the best payment system of this type in Europe, Alipay, whose owner is the online store Alibaba. At the moment, Sqware, a competitor to PayPal, is actively developing in Germany, owned by the founder of Twitter, J. Dorsey. In Russia, well-known companies of this type are electronic wallets Qiwi, Google, Yandex money [7, p. 46].

– **digital banking** as the implementation of financial services using mobile and online platforms, which saves time and costs, increases the security of personal data, increases the speed and quality of services. Traditionally, since the inception of banking, customer service has been carried out through physical contact at bank branches. During the period of the emergence and active development of remote banking services, such service channels as telephone banking, terminal banking, Internet banking, TV banking, and mobile banking appeared. The new period of digital banking is characterized by the emergence of such communication methods as a reverse form of communication through the bank's web application on a mobile phone, social media platforms (VKontakte, Odnoklassniki, Facebook, Twitter, etc.), as well as interactive video communication with a client in points of sale, offices and self-service devices [8, p. 215];

According to a study by the American consulting company BCG, top players in the global financial services market are investing heavily in creating next-generation banking models. The largest banks with competent human resources and ambitious executives invest generously in digital technologies and benefit from their use through economies of scale. Market leaders are already applying new approaches to organizing large amounts of data on the basis of a single platform, and the use of in-depth analysis of large amounts of data allows the largest banks to improve the accuracy of credit scoring, form individual offers addressed to customers and efficiently allocate resources. In addition, large banks are rapidly changing the format of their branches, reducing their number, equipping them with the equipment necessary for the independent implementation of most of their service operations by clients, and focusing the efforts of the remaining staff on consulting and sales. Banks are introducing new solutions to improve the quality and simplify operations, which is facilitating the transition from physical channels to digital/mobile customer service. Open development and software-as-a-service (SaaS) solutions are especially important for banks to streamline their operational capabilities. The implementation of APIs allows third parties to develop solutions and features with additional characteristics that are easy to integrate with banking platforms. At the same time, SaaS solutions help banks offer customers a wider range of options that are constantly being updated while banks do not need to invest in relevant research, design and development of new technologies.

REFERENCES

1. Sound Practices: Implications offintech developments for banks and bank supervisors. Consultative Document // Basel Committee on Banking Supervision. — [Electronic resource]. — Mode of Access: https://www.bis.org/bcbs/publ/d415.pdf. — Date of access: 22.03.2021.
2. Яценко, Б. Обзор отрасли финансовых технологий / Б. Яценко, И. Прутов, Ю. Гусев. — М.: Ernst & Young, 2016. — 158 с.
3. Размывание границ: как компании сегмента финансовых технологий влияют на сектор финансовых услуг. Всемирный обзор сегмента FinTech. Март 2016 года // Pw C. — [Электронный ресурс]. — Режим доступа: https://www.pwc.ru/ru/ banking/publications/fintechglobal-report-rus.pdf. — Дата доступа: 24.12.2020.
4. Fintech 100 Loading Global Fintech Innovators // KPMG / 2017.
5. Усоскин, В. М. Финансовое посредничество в условиях развития новых технологий / В. М. Усоскин, В. Ю. Белоусова, И. О. Козырь // Деньги и кредит. — 2017. — № 5. — С. 14–21.
6. Перцева, С. Ю. Финтех: механизм функционирования / С. Ю. Перцева // Инновации в менеджменте. — 2017. № 12. — С. 50–53.
7. Никитина, Т. В. Роль компаний сегмента финтех и их место на финансовом рынке России / Т. В. Никитина, М. А. Никитин, М. А. Гальпер // Известия Санкт-Петербургского государственного экономического университета. — 2017. — № 1–2 (103). — С. 45–48.
8. Долгушина, А. Я. Цифровая модель банковского обслуживания / А. Я. Долгушина, Н. Л. Полтораднева // Научно-технические ведомости Санкт-Петербургского государственного политехнического университета. Экономические науки. — 2016. — № 6 (256). — С. 206–218.

Economics

UDC 336.763

ANALYSIS OF THE SECURITIES MARKET OF THE REPUBLIC OF BELARUS

E. ZAIKOVICH, I. STROGANOVA
Polotsk State University, Belarus

The stock market plays an important role in the development of the national economy of the country, in the system of redistribution of financial resources of the state. An active stock market is essential for the normal functioning of a market economy. The attractiveness of the investment climate of the state depends on the state of development of the stock market. Now the further development of the stock market of the Republic of Belarus is one of the priority tasks the government facing.

Methods of research: Methods of system approach, deduction, analysis and synthesis, general scientific research methods, as well as methods of functional analysis.

Introduction. The relevance of the problems presented for the review of the article is beyond doubt, since the stock market plays an important role in the development of the national economy of the country, in the system of redistribution of financial resources of the state. An active stock market is necessary for the normal functioning of the market economy, since the attractiveness of the investment climate of the state depends on the state of development of the stock market. At the present stage, the further development of the stock market of the Republic of Belarus is one of the priority tasks facing the government.

The main part. The securities market is a system of relations between legal entities and (or) individuals, as well as other subjects of civil law in the course of the issue (issue), circulation and redemption of securities, the implementation of professional and exchange activities on securities [1].

The securities market is an integral part of the stock market - the market of financial instruments [2]. To date, the most common objects of investment on the stock exchange market of the Republic of Belarus are stocks and bonds.

The share is issued by the joint-stock company at its establishment and is a certificate of making a certain share in the authorized capital of the company. A bond is a debt obligation under which the issuer must return the specified amount of the bond to its holder within the agreed period.

The first difference is that the holder of a share is a co-owner of a joint-stock company, while the holder of a bond is a creditor.

The second difference: the share is a perpetual security, it exists as long as the joint-stock company operates. The bond is a term security and is issued for a strictly fixed period.

The third difference is that the income on shares is not fixed and depends on the profit of the joint-stock company.

The fourth difference: interest on shares is paid after interest on bonds is paid.

The fifth difference: the owner of the share has the right to vote at the general meeting of shareholders, while the owner of the bond does not have this right.

Thus, stocks are one of the most risky and profitable investment products. Their acquisition does not guarantee a stable income. At the same time, investments in bonds are the most reliable investment in the securities market. These securities give the holder one right: the right to receive the nominal value of the bond within the prescribed period and, in some cases, additional income.

A bond is called a debt paper because for the issuer it is a borrowing instrument, a kind of alternative to a bank loan. By placing bonds, the issuer actually borrows money from investors.

Unlike stocks, the risks on bonds are much lower. The amount of income, as a rule, is known in advance, and you can lose the invested money only if the issuer of the paper goes bankrupt. Therefore, you need to choose a reliable issuer. Bond issuers are numerous business entities, banks, and government agencies.

General characteristics of the securities market as of 01.01.2020.

Bonds [3]:

* 255 bond issuers (22 banks, 181 enterprises, 50 bonds of local executive and administrative bodies (hereinafter-OMZ);

• 988 issues (153 banks, 594 enterprises, 146 OMZ);

• RUB 30.1 billion – the total volume of all types of bonds issued at par value;

* RUB 20.2 billion volume of bonds issued by banks, enterprises, and local loans;

• RUB 29.0 billion – total volume of operations with bonds in all market segments;

• RUB 10.6 billion - volume of operations with bonds in the organized market;

Shares [3]:

* 4258 issuers of shares - (2289-JSC, 1969 – CJSC);
• 4327 issues(2324-JSC, 2003-CJSC);
• 33.6 billion rubles-the total volume of shares issued at par value;
* RUB 766.6 million – total volume of transactions with shares in all market segments, including shares of CJSC;
* 179.7 million rubles– the volume of transactions for the purchase and sale of shares of the Company (of which 34.5 million rubles-on the stock exchange).

The OTC market is becoming more popular every year. For example, in 2018, the volume of transactions with securities on the OTC market was 16.9 billion rubles, on the exchange market-13.0 billion rubles, but in 2019, the volume of transactions on the OTC market increased to 19.1 billion rubles, and on the exchange market, the volume decreased to 10.6 billion rubles.

We summarize the data on the securities market in the context of professional participants in the market 2014-2020 in Table 1.

Table 1. – Number of professional participants in the market 2014-2020

Indicators	2014	2015	2016	2017	2018	2019	2020
Number of professional participants, including:	76	62	65	60	62	61	59
banks and NCFO	30	29	27	26	26	25	25
non-bank organizations	46	43	38	34	36	36	34

For a more visual representation of the dynamics of the debt market capacity, we present the data in Figure 1.

Fig. 1. – Number of professional participants in the market 2014-2020

As you can see in Figure 1, as of 01.01.2020, the number of professional participants in the securities market was 59, including 25 banks and NCFO (as of 01.01.2019, the number of professional participants was 61, including 25 banks and NCFO). As of 01.01.2020, the number of professional participants engaged in brokerage activities was 56, dealer activities-56, depository activities-30, securities trust management activities-22, securities trading activities-1, clearing activities-1.

Also note that from 01.01.2014 to 01.01.2020, the "number of professional participants" decreased by 17 pieces, including "banks and NFO" by 5 pieces, and "non-bank organizations" by 12 pieces.

The complex issue structure of the securities market is shown in Figure 2.

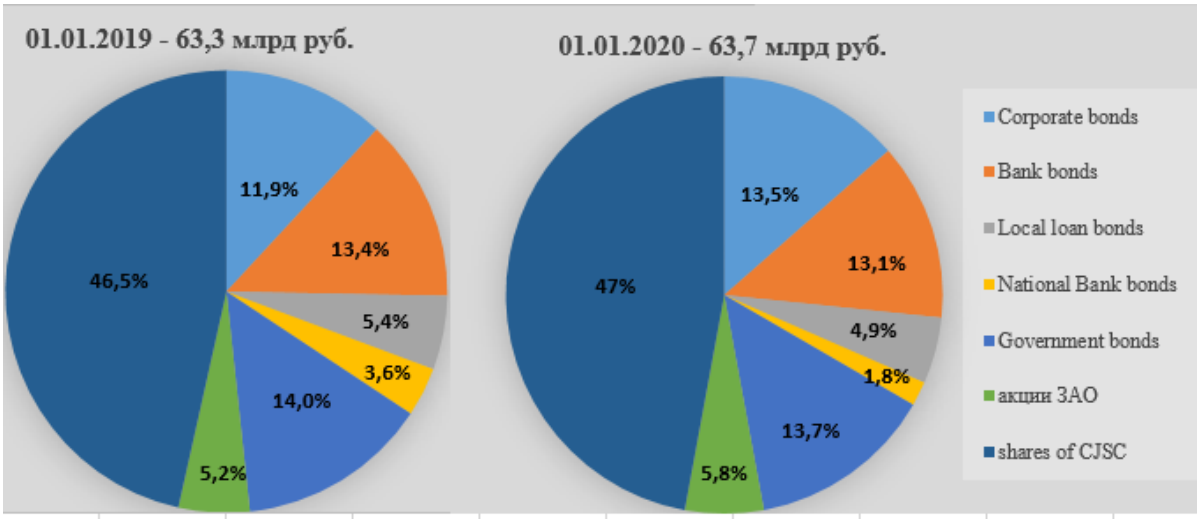


Fig. 2. – Complex issue structure of the securities market for 01.01.2019-01.01.2020

In Figure 2, it is noticeable that the largest share in the complex structure of the securities market in both 2019 and 2020 is occupied by "shares of JSC" b (47% in the reporting period, 46.5% in the base period). The lowest share is occupied by "bonds of the National Bank" (in 2020 -1.8%, in 2019-3.6%). From 01.01.2019 to 01.01.2020, there was an increase in such indicators as "shares of JSC" by 0.5 p. p., "shares of CJSC" by 0.4 p. p., and "bonds of enterprises" by 1.6 p. p. It should also be noted that there was a decrease in such indicators as "government bonds" by 0.3 p. p., "National Bank bonds" by 1.8 p. p., "local loan bonds" by 0.5 p. p., and "bank bonds" by 0.3 p. p.

The analysis of the state of the securities market of the Republic of Belarus for the period 2018-2019 showed that the stock market continues to prevail over the bond market. As a result of the study, the author identified a number of problems with the stock market: the actual absence of a secondary stock market, the lack of foreign investment.

REFERENCES

1. Закон Республики Беларусь от 05.01.2015 №231-З «О рынке ценных бумаг» [Электронный ресурс] – Режим доступа : http://www.pravo.by/document/?guid=3871&p0=H11500231 - Дата доступа: 29.03.2021.
2. Кравцова, Г. И. Фондовый рынок/ Г. И. Кравцова [и др.] ; под общ ред. проф. Г. И. Кравцовой. — Минск : БГЭУ, 2016. — 494 с.
3. Отчет о работе Департамента по ценным бумагам Министерства финансов Республики Беларусь [Электронный ресурс]. – Режим доступа: http://minfin.gov.by/special/securities_department/reports/doc/2f232de1d1834076.html. – Дата доступа: 29.03.2021.
4. Алексеев, М.Ю. Рынок ценных бумаг / М.Ю. Алексеев – М.: Финансы и статистика, 2017. – 255 с.
5. Чижик, В. П. Рынок ценных бумаг : учебное пособие / В.П. Чижик. ФОРУМ: ИНФРА-М, 2018. - 448 с.
6. Фельдман, А. Б. Производные финансовые и товарные инструменты : учебник / А. Б. Фельдман. – М. : Экономика, 2012. – 479 с.
7. Галанов, В. А. Рынок ценных бумаг: учебник/ В.А. Галанов. - 2-е изд., перераб. и доп. - м.: ИНФРА-М, 2017. - 414 с.

UDK 336.71

APPROACHES TO STANDARDIZING THE BANK'S RISK MANAGEMENT SYSTEM

O. KASEVICH, I. STROGANOVA
Polotsk State University, Belarus

In an unstable environment, the theoretical foundations and standards of the banking risk management system will help to avoid a significant negative deviation from the planned performance indicators of the bank as a result of the "implementation" of risks, and in a crisis – to avoid bankruptcy, to overcome the crisis situation with minimal losses.

Methods of research: Methods of system approach, deduction, analysis and synthesis, general scientific research methods, as well as methods of functional analysis.

Introduction. Currently, one of the most important areas is risk management in the banking system as an area of standardization and a means of improving the efficiency of the bank.

The level of bank risk management processes has a huge impact on its quality functioning. On the one hand, uncertainty in decision-making processes becomes a source of risk, and on the other – provides a huge range of opportunities for the bank, and can both reduce and increase the cost of the banking business. In these circumstances, through risk management, we can find a balance between these two poles.

The main part. Today in the Republic of Belarus the requirements of the Resolution of the Board of the National Bank of the Republic of Belarus No. 550 of 29.10.2012 are used to regulate the risk management system in banks [1].

At the moment, the main international acts that regulate risk management are the following:

1. The COSO-ERM model is an integrated risk management model adopted by the Committee of Sponsoring Organizations of the Treadway Commission [2].

2. The RMS model is a risk management standard that was developed jointly with the Institute of Risk Management (IRM), the Association of Risk Management and Insurance (AIRMIC) with the participation of the National Forum of Risk Management in the UK Public Sector [3].

3. Basel II-international convergence of capital adequacy measurement and its standards, which are adopted by the Bank for International Settlements [4].

Table 1. – Parameters of risk management quality standards

Standard	Goal	Types of risks taken into account
COSO-ERM	Balance of profitability and risk	Maximum set
RMS	Maximizing profitability	Middle set
Basel II	Ensuring minimum regulatory capital	Minimum set

All the documents listed in Table 1 are aimed at achieving a certain goal. Thus, if the RMS Model aims to achieve maximum profitability, then the Basel II requirements set a clear limit on the minimum amount of regulatory capital, and only the COSO-ERM standard reflects the desire for a balance between profitability and risk. Based on this, we can note that each standard under consideration has its own types of risks: the maximum set in COSO-ERM, the average set in the RMS model, and the minimum set in the Basel II standard.

For example, Basel II, which is characterized by more deterministic and sophisticated methods and techniques for achieving the stated goal, largely uses limit management processes as a means of risk management. The difficulties of developing risk management methods while striving for a balance of profitability and risk have led to the fact that such a standard as COSO-ERM as the main method of risk management offers continuous monitoring and control of risky processes. the risk management methodology associated with the need for additional development of its practical implementation and, ultimately, with additional large costs.

According to the requirements of COSO, the organization must ensure the 3 main objectives of the company's management system:

- ensuring the productive and efficient work of the organization;
- guarantee of reliable reliable reporting;
- compliance with the established norms of this legislation.

5 important components of an effective company management system are listed below.

1. Managing the financial environment that determines the budget for the management system.

2. Risk assessment, which includes the identification and analysis by the company's management of important and significant risks in the course of achieving certain goals.

3. Management activities, procedures, methods and methods that guarantee that the management goals are achieved, and the risks identified in the strategy are overcome.

4. Internal communication processes that support the remaining management components, transferring management responsibilities to employees and providing information in the form and time frame necessary for employees to perform their duties.

5. Monitoring, which reveals the position of management within the process to management or to other parties outside the process, or shows employees involved in the process the application of an independent methodology, such as user-customized procedures or typical checklists.

The basic agreements are introduced by the Basel Committee on Banking Supervision (BCBS), a committee of banking supervisory authorities that was established by the central bank governors of the Group of Ten (G-10) countries in 1975. The main purpose of the committee is to provide guidelines for banking regulation. BCBS has issued 3 agreements: Basel I, Basel II and Basel III, with the intention to increase confidence in banks by strengthening banking supervision worldwide.

The main difference between these standards is that Basel I is set to define a minimum capital-to-risk-weighted asset ratio for banks, while Basel II is set to introduce supervisory functions and further strengthen minimum capital requirements, and Basel III is set to meet the need for liquidity buffers (an additional level of capital).

In the RMS standard, the balance between riskiness of transactions and maximizing profitability is recommended to compensate for the transfer of risk to a third party, for example, hedging or insurance.

Each standard asserts the need for continuity of risk monitoring and control processes, despite differences in the objectives and methods of risk management.

Most often, choosing a particular standard of banking services as the main one is not an easy task. The Bank often uses several standards at the same time, that leads to uncertainty in the risk management process. The choice of a risk management standard or its balanced expansion requires, firstly, a full understanding of the requirements of each standard and the methods of its practical application (implementation), and secondly, it significantly depends on the degree of maturity of both the risk management processes and the information technology management processes in the bank.

REFERENCES

1. Общее положение: Постановление правления Национального Банка Республики Беларусь от 29 Октября 2012 г. № 550. [Электронный ресурс]. – Режим доступа: https://pravo.by/upload/docs/op/B21226605_1354914000.pdf. – Дата доступа: 14.03.2021.
2. Управление рисками организаций. Интегрированная модель, сентябрь 2004 COSO ERM The Committee of Sponsoring Organizations of the Treadway Commission [Электронный ресурс]. – Режим доступа: https://www.aoosk.ru/about/vnutrenniy-kontrol-upravlenie-riskami/D%20COSO%20UR.pdf. – Дата доступа: 28.03.2021.
3. Стандарты управления рисками. Федерация европейских ассоциаций риск-менеджеров. Русское общество управления рисками [Электронный ресурс]. – Режим доступа: http://rrms.ru/upload/common/doc/Doc-pdf_RU_2005.pdf. – Дата доступа: 28.03.2021.
4. Basel Committee on Banking Supervision. An Internal Model-Based Approach to Market Risk Capital Requirements. Bank for International Settlements. April 1995. [Электронный ресурс]. – Режим доступа: https://www.bis.org/publ/bcbs17.pdf. – Дата доступа: 28.03.2021.
5. Basel Committee on Banking Supervision [Electronic resource]: Minimum capital requirements for market risk. Bank for International Settlements. January 2019 [Электронный ресурс]. – Режим доступа: https://www.bis.org/bcbs/publ/d457.pdf. – Дата доступа: 28.03.2021.
6. Ковалев М.М. Банковская аналитика : учеб. пособие. – Минск: Изд. Центр БГУ, 2020. – 458 с.

UDC 65.5

PROPOSAL ON MOTIVATION LINK TO ACHIEVE ENTERPRISE OBJECTIVES

A. NOVITSKAYA, I. ZENKOVA
Polotsk State University, Belarus

High motivation of staff is an essential condition for the success of the organization. No company can succeed without a high-impact workforce, without a high level of staff commitment, without the interest of the members of the organization in the final results and without their desire to contribute to the achievement of their goals. That is why the interest of managers and researchers involved in management in studying the causes that force people to work with full strength in the interests of the organization is so high [1].

The ability to carry out professional duties alone is not sufficient to achieve the goals of the organization, since no matter how qualified a staff member is, their productivity also depends on the desire to work or motivation to work. Only a combination of strong labor motivation and professional skill ensure the achievement of the result.

Motivation is the internal state of a person associated with needs, which activates, stimulates and directs his actions to the set goal.

Motivation is often identified with stimulation. These concepts are very similar in content, but we should not mix them.

Stimulation involves external (moral, physical, material) influence on people in order to directly influence the results of work, the activation of employees ' activities.

In order to effectively perform the function of motivation in practice, the manager must master modern theories of motivation, taking into account human behavior and the mechanisms of motivation to a particular action.

Motivation theories can be divided into two groups [2]:

1) meaningful theories of motivation, based on the identification of the internal motivations of the individual and the needs that make people act this way and not otherwise (these are the theories of A. Maslow, F. Hertzberg, D. McClelland, K. Alderfe);

2) procedural theories of motivation are based primarily on how people behave, taking into account education and cognition (this is the theory of expectation by V. Vroom, the theory of justice and the Porter-Lawler model of motivation.

Purpose of personnel motivation activities – to unite the interests of the enterprise and employees. That is, the company needs high-quality work, and staff need decent wages. But this is not the only goal aimed at stimulating workers.

Motivating employees, managers strive to [3]:

- retain a permanent staff;
- Minimize the number of layoffs (eliminate "personnel flow")
- Identify objectives and orient staff to achieve results within the specified time frame;
- Identify and deservedly reward the best employees;
- interest and attract valuable personnel;
- Monitor salary payments.

Based on the analysis of the state of labor motivation in organizations, the following proposals have been developed that will help resolve the problems of personnel management and motivation in the enterprise [4].

1. Formation of corporate spirit and corporate culture through the creation of high goals and principles in the organization, bringing them to the staff and informing employees about the place and role of functions performed in the affairs of the company and public importance.

Within the framework of the event, it is necessary to establish high principles of personnel behavior and management, their wording. Familiarize each employee of the organization with them and constantly mention them at internal meetings.

If the staff is working today, the management is working for tomorrow. Whatever the basic needs of the person, an opportunity to work in the known company which promotes accurate clear known were it is far beyond her limits and the purposes getting public approval, will excite to a degree in the person pride of an opportunity to belong to this corporation, to feel her as a part. Thus, the creation of a "corporate spirit" becomes the most important link in the motivation program of any team. This type of motivation will not cost the company so much, and the return from it will be very significant, since, in addition to meeting the needs of individual workers, collective forms of incentives contribute to team cohesion and the formation of "corporate consciousness", which undoubtedly affects the increase in labor productivity.

2. Specify the orders to be issued with the definition of the final results of work and indicate the timing, methods and means of achieving stability and confidence of employees.

During the survey, dissatisfied employees personally expressed dissatisfaction on this issue, in connection with which satisfaction fell on other points, and therefore motivation decreased greatly. The head of the company, interested in the clear work of his enterprise, must accurately determine to each subordinate the final goals of his work. At the same time, it is important to describe in detail the mechanism and the stages of their achievement. In this case, it is less necessary to give instructions related to private tasks, the employee is more self-evident. The manager is obliged to ensure the development and application of clear instructions, the use of which allows to act without additional explanations and very proactively. It is necessary to make sure that the subordinate correctly understood the task and accurately represents what they want from it. Each employee must understand in detail the essence of the current and promising tasks facing the company. It is advisable for management to plan for each staff member to achieve specific results within specified time periods.

The advisability of the recommendation is to increase the efficiency of the use of working time, the responsibility for their actions, the clear fulfillment of the set goals, the manifestation of independence and initiative among subordinates.

3. Involvement of employees in decision-making through regular internal meetings, coordination with employees of individual decisions made at the workplace, collective discussions of problems.

The disadvantages of organizing earlier meetings are the random nature, the absence of specific conclusions and conclusions (who, what, when and in what time frame should make and what is the significance of the result of its actions). One of the important conditions of personnel management is the ability to involve subordinates in the development and implementation of the problem, to explain and convince subordinates that the implementation of the intended will depend on the skill, practical experience, that their ideas and proposals are of value to the enterprise. In these cases, subordinates will take the initiative, invest all their knowledge and experience in the work. Constant care for subordinates is a good method for obtaining the best production results.

4. Organize a bonus wage system for employees.

The pay system in the organization cannot adequately affect the level of initiative of employees of the enterprise. It is necessary to create a flexible mechanism for influencing personnel. A fixed salary does not allow the manager to change it at will. Tariff change - rarely occurs. The employee is firmly counting on the salary, and from month to month he will repeat his achievements in order to receive it. Therefore, as a flexible mechanism for influencing an employee, there may be a premium.

The prize will be organized by dividing existing wages into wages, profit participation bonuses, functional bonuses, achievable bonuses and bonuses for special services.

The expediency of this method is as follows:

- Rational use of the wage fund;
- cash savings due to depression;
- responsibility for its actions;
- Strengthening initiative, creative innovation;
- Focus on cost-benefit allocation

5. Moral reinforcement of material incentives by bringing to the employee the reason for the incentive with increased attention to the employee's personal contribution to the organization's activities.

The results of this method will be:

- positive influence on behavior and personal development;
- Recognition of the organization's goals and perspective;
- Development of staff motivation for self-improvement and achievement;
- Meeting the needs for recognition, respect and expression.

The use of this method requires the manager to have an idea of the psychological portrait of the entire team. This will help to correctly assess the general needs that can be effectively met by the organization, as well as the optimal level of influence of motivation methods.

5. Moral reinforcement of material incentives by bringing to the employee the reason for the incentive with increased attention to the employee's personal contribution to the organization's activities.

5. Moral reinforcement of material incentives by bringing to the employee the reason for the incentive with increased attention to the employee's personal contribution to the organization's activities.

The results of this method will be:

- positive influence on behavior and personal development;
- Recognition of the organization's goals and perspective;

- Development of staff motivation for self-improvement and achievement;
- Meeting the needs for recognition, respect and expression.

The use of this method requires the manager to have an idea of the psychological portrait of the entire team. This will help to correctly assess the general needs that can be effectively met by the organization, as well as the optimal level of influence of motivation methods.

6. Carrying out measures to improve the level of skills and knowledge of individual employees.

If the management of the company correctly conducts measures to stimulate its employees, then the enterprise can get the following positive result, namely:

- Improved quality and productivity;
- Employees become more responsible in the performance of their duties;
- Employees have a team spirit;
- Production indicators are improving;
- The "flow" of frames is reduced;
- The company begins to develop rapidly, etc.

In spite of the general cohesion, knowledge, skills and skills of some staff members do not reach the level required for their posts, a number of measures need to be taken to improve their skills at the expense of the organization. Employees who are fully aware of the tasks of their sphere of activity and are able to meet the requirements that are assigned to them will be able to bring much greater benefit to the enterprise in the future.

Since motivation also has a psychological basis, it is not always possible to objectively assess the state of motivation of employees, their needs by any external manifestations. Therefore, the manager, choosing methods of influencing subordinates, should be as objective as possible, based not on general impressions, but on specific accurate indicators and data. To manage personnel activation, you must constantly monitor the process of using incentive methods in your enterprise.

REFERENCES

1. Состояние и проблемы мотивации персонала предприятий в современных [Электронный ресурс]. – Режим доступа: https://studbooks.net/1305378/menedzhment/sostoyanie_problemy_motivatsii_personala_predpriyatiy_sovremennyh_usloviyah. – Дата доступа: 22.04.2021.
2. Мотивация–процесс побуждения себя и других к деятельности для достижения личных целей и целей организации [Электронный ресурс]. – Режим доступа: https://studopedia.ru/3_193668_motivatsiya--protsess-pobuzhdeniya-sebya-i-drugih-k-deyatelnosti-dlya-dostizheniya-lichnih-tseley-i-tseley-organizatsii.html. – Дата доступа: 22.04.2021.
3. Методы мотивации персонала в организации [Электронный ресурс]. – Режим доступа: https://chaspeek.ru/shirt/motivaciya-personala-opredelenie-metody-motivacii-personala-v-organizacii-dlya/. – Дата доступа: 22.04.2021.
4. Совершенствование системы мотивации персонала в организации[Электронный ресурс]. – Режим доступа:https://studwood.ru/713522/menedzhment/razrabotka_predlozheniy_motivatsii_truda_organizatsii – Дата доступа: 23.04.2021.

CONTENTS

ECONOMICS