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

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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

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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-telekommunikatsionnyye-tekhnologii/>. – Date of access: 2021.04.12.

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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.