

DOI 10.53364/24138614_2022_24_1_46
УДК 656

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TENDENCIES OF NEW TECHNOLOGIES USAGE IN FREIGHT TRANSPORTATION SERVICE

ТЕНДЕНЦИИ ИСПОЛЬЗОВАНИЯ НОВЫХ ТЕХНОЛОГИЙ В СФЕРЕ ГРУЗОВЫХ ПЕРЕВОЗОК

ЖҮК ТАСЫМАЛДАРЫ САЛАСЫНДА ЖАҢА ТЕХНОЛОГИЯЛАРДЫ ПАЙДАЛАНУ ҮРДІСТЕРІ

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Abstract. This article deals with new directions of new technologies usage in freight transportation service. Identifies the main problems in this sphere and discusses their role of innovative technologies in air cargo service. Technology has always been the driving force behind logistics. Today, companies offer a fairly wide range of technological solutions. The invention of the computer, the Internet and related technologies has become a real revolution in logistics. Web technologies, programs and transport management systems have appeared. However, now the logistics industry is on the verge of another revolution.

Widely internet sources and different methods of investigation are used by the author.

Key words: logistics, freight transportation, revolution, company, offer, market.

Аннотация. В данной статье рассматриваются новые направления использования инновационных технологий в сфере грузовых перевозок. Выявляются основные проблемы в этой сфере и обсуждается их роль в грузовых авиаперевозках. Технологии всегда были движущей силой логистики. Сегодня компании предлагают довольно широкий спектр технологических решений. Изобретение компьютера, интернета и сопутствующих технологий стало настоящей революцией в этой сфере. Появились веб-технологии, программы и системы управления транспортом. Однако сейчас индустрия логистики находится на пороге очередной революции.

Автор широко использует интернет-источники и различные методы исследования.

Ключевые слова: логистика, грузовые перевозки, революция, компания, предложение, рынок.

Аңдатпа. Бұл мақалада жүк тасымалы саласында инновациялық технологияларды қолданудың жаңа бағыттары талқыланады. Бұл саладағы негізгі проблемалар айқындалып, олардың әуе жүктерін тасымалдаудағы рөлі талқыланады. Технология әрқашан логистиканың қозғаушы күші болды. Бүгінгі таңда компаниялар технологиялық шешімдердің жеткілікті кең спектрін ұсынады. Компьютердің, интернеттің және онымен байланысты технологиялардың пайда болуы осы саладағы нағыз революция болды. Веб-технологиялар, бағдарламалар және көлікті басқару жүйелері қарқындап дамуда. Дегенмен, логистикалық индустрия қазір тағы бір революция бастан кешу қарсаңында.

Мақаланы жазу барысында автор интернет көздерін және әртүрлі зерттеу әдістерін кеңінен пайдаланады.

Түйін сөздер: логистика, жүк тасымалы, революция, компания, ұсыныс, нарық.

Introduction. The increasing globalization and digitalization, the widespread use of big data analysis technologies are radically changing the organization of airspace management and the air transportation market. The world's leading airlines are modernizing their location systems to accurately identify the location of aircraft, passengers and baggage, speed up ground pre-flight preparations, automate and improve service. Leading airlines and major airports are actively introducing internet technology, connecting an increasing number of physical infrastructure elements to it and developing special navigation applications that analyze information from sensors about the location of objects. The technology allows to manage the increasing passenger traffic, improve the quality of service, reduce costs and generally optimize the operation of the industry. The Internet is a multitude of Internet-connected and sensibly physical objects - from smartphones, tablets to cars and jet engines - that collect and exchange data over a network, including local or wireless. At airports, the technology makes it possible to combine warning systems and monitoring the movement of all objects, to make the stay of passengers more comfortable and safe by transferring data important for navigation to their portable electronic devices (smartphones, tablets, etc.). Air hubs can more effectively control the number of passengers at any point in the airport and prevent large queues.

Discussion. In the near future, the air cargo transportation industry will face a number of logistical problems. At the beginning of 2019, electronic waybills (e-AWB) became a mandatory document for the execution of contracts for the delivery of goods by air. The need to digitalize the supply chain of goods by air is the basis of this transition from manual to paper mode. But while the introduction of e-AWB electronic invoices will undoubtedly lead to a reduction in the number of delays and costly errors, to ensure efficient operation, participants need access to accurate information in real time, and they must be able to maintain electronic communication with other participants in the supply chain. The cost and implementation of assistive technologies are the problems that suppliers will continue to face for some time [1].

Another problem facing the industry is the growing number of countries that require air cargo carriers to provide customs and border service with data on delivered goods in advance. Despite initiatives such as pre-screening of air cargo (ACAS) and submission of commercial information prior to loading (PLACI), ensuring compliance with information requirements for international customs services continues to be a challenge for the industry, especially in small countries outside the United States and the European Union.

Despite an increase in passenger aircraft capacity (up 27% between 2020 and 2021), according to Boeing, cargo aircraft will continue to carry more than 50% of total air cargo over the next two decades. This is because cargo aircraft consistently offer the ability to transport with a high degree of control, and, in addition, they have incomparable advantages in terms of capacity, dimensions and the ability to transport hazardous substances. Over the five-year period from 2015 to 2020, the number of large transport aircraft in operation increased by 8%. About 40% of wide-body transport aircraft are operated by express delivery companies - these aircraft serve as a connecting element in the chain of delivery of goods to the door. In 2020, wide-body transport aircraft accounted for 40% of the revenue generated by the air freight industry. Range constraints on fully loaded passenger aircraft, as well as the number of routes serving markets with high demand for cargo, are forcing customers to choose primarily transport aircraft, and this will continue for the foreseeable future. Rapid advances in drone technology are driven by the need for military drones, but also by the need to ensure that goods are delivered as quickly as possible to remote locations where there are no airports. This, in turn, creates new opportunities for the air freight industry [2].

Result. The development and implementation of modern information technologies is currently one of the urgent tasks of transport logistics. Currently, various electronic data exchange systems are widely used in world practice, the degree of use of which determines the level of competitiveness of various logistics transport systems in the global transport services market. It is possible to solve the problem of speeding up the turnover of documents, improving the quality of their registration, ensuring the unhindered movement of goods only by automating information processes. Therefore, the development and implementation of modern information technologies is currently one of the urgent tasks of transport logistics.

Boeing Horizon uses new aviation technologies to develop autonomous flights. Aerodynamic tests of unmanned aircraft (or unmanned cargo air vehicles) were completed in early 2018. The company intends to create a cargo plane of the future, capable of delivering parcels weighing up to 500 pounds in a timely manner. The aircraft's dual rotor was tested under a rigid program for vertical takeoff/takeoff with a short takeoff and landing in a Boeing wind tunnel in Ridley Park, Pennsylvania. According to sUASnews, the Chinese Academy of Sciences modified and successfully tested the PAC P-750 XSTOL turboprop unmanned aircraft in 2017. Today, some of the most interesting aircraft models of the future are being developed by the Chinese company Beihang UAS Technology (which is part of Beihang University, formerly known as Peking University). The unmanned aircraft BKZ-005 will be tested in September this year, and its release is scheduled for the second half of 2019. The unmanned aircraft will carry cargo weighing up to 1.2 tons over a distance of more than 745 miles at an altitude of more than 16,000 feet.

At the same time, Amazon is creating aviation technologies of the future that will allow for efficient and safe delivery of goods by drones. This delivery system is called Prime Air, and upon completion of work on it, it will make it possible to deliver goods to customers within 30 minutes or less using drones (or unmanned aerial vehicles) [2].

With the introduction of the SAFE Standards and ICS-2 regulatory framework in 2019, in which postal items are no longer an exception, a number of changes will occur in the field of mandatory documents on security and postal items. Postal companies and express delivery companies now provide information about postal items to customs services. It is expected that by 2023 carriers will be required to provide information about postal items [3]. The problems facing carriers' supply chains force them to develop a system that will allow information to be forwarded from carriers' mail systems to platforms designed for processing documents related to security issues. While e-commerce has been a boon for the air cargo industry, the rapid delivery of goods purchased from online stores to home and international markets still presents some challenge. It is likely that the factor that will be most influential in the success or failure of the air cargo industry is the ability to build an effective supply chain that allows you to accelerate the delivery of goods, customs procedures and provide customers with the ability to track the movement of goods from the moment of order to the time of delivery. With the ever-accelerating transformation of the air cargo industry, specialists will develop technologies to automate processes, improve data quality and ensure information exchange and streamline compliance processes.

The ultimate goal of digitalization of the air cargo transportation industry is to provide paperless document management and intelligent information exchange, allowing the transportation of goods by air in the fastest, easiest and safest way. The digital approach to cargo transportation services is intelligent, cost-effective and environmentally friendly. The digital approach is more attractive to customers because digitalization minimizes human errors, the number of which is significantly less than when handling goods manually.

The implementation of the latest information technologies and mass computerization have created new opportunities in the organization of cargo flows of the transportation market. Modern technologies for handling cargo flow and its transportation have appeared, for example, online orders for cargo transportation. The market structure of cargo flows has been completely reorganized, reducing the delivery time, especially for combined cargo. Significantly reduced the

processing time of cargo traffic at the intermediate stages of transit movement of goods, as well as the speed of cargo handling and dispatch. The creation of combined cargo, its processing and dispatch from the manufacturer to the customer have been enormously reduced, which significantly reduced the cost of transportation, and, consequently, the cost of production. Further development of the electronic database, in particular the use of navigation and the Internet, made it possible to monitor the state of cargo traffic already in dynamics, and the possibility of planning and redistributing cargo flow on the ground. This reduced the storage space and waiting time for the receipt of cargo and its subsequent redirection directly to the places. The creation of a common information database of carriers, participants in the cargo transportation market, made it possible to quickly and efficiently select direct performers of work, and also made it possible to integrate cargo flows (when small shipments are collected at certain places at certain times for subsequent processing and transportation) [4].

Conclusion. While the industry is trying to introduce digitalization, a large number of startups see an opportunity for themselves to interfere with the coordinated work of the industry. The report warns that modern shippers demand a higher quality of services at highly competitive prices and with access to all information on the transported cargo. The main factor distinguishing one cargo carrier from another will be the use of new technologies. Cargo carriers will have to work with a very modest profit margin and in an increasingly competitive environment.

Currently, about 35% of the goods circulating in world trade are transported by air. The next 15 years will undoubtedly be critical for the changes and development of the industry against the background of global growth along with the world's population, which requires the delivery of more expensive goods than ever before. Since the main advantages of air cargo transportation have always been speed and reliability, air transportation will remain the preferred solution when transporting valuable goods that need to be delivered on time [5]. How well the industry manages to do this will depend on its ability to cope with the many challenges that the industry will face in the next decade and beyond. Smartphones are already used for logistics management, currently they are an integral part of truck management and business in general. In the near future, AI will be an indispensable assistant in the daily activities of the transport business.

The technology of using smartphones for cargo transportation not only increases the profit from land transportation, improves the quality of work, but also ensures complete safety.

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