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MODIFICATIONS OF DIGITAL TECHNOLOGIES BY CLIENT-ORIENTED SERVICE OF LOGISTICS ACTIVITIES IN THE MANAGEMENT SYSTEM OF THE ENTERPRISE

Abstract. The study examines the peculiarities of the use of information systems and digital technologies, digitization of the organization of logistics processes, increasing the volume of e-commerce, personalization of logistics services, as well as management of relationships with consumers of enterprises of various types of economic activity. These questions are especially relevant in the conditions of rapid development of the digital economy. The expediency of a comprehensive approach to the transformation of customer service in enterprise logistics management systems in digital conditions has been demonstrated. A statistical analysis of the indicators characterizing the level of use of information and communication technologies in the organization of the logistics activities of the enterprise was carried out. The main barriers to the digital transformation of customer service are formulated, conditionally grouped into marketing, information and organizational barriers. It was

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determined that in order to eliminate the barriers listed above, it is advisable to implement effective tools for the transformation of customer service, one of which is the information system for managing relations with consumers (CRM, Customer Relationship Management). The expediency of using the information system and digital technologies for the complex transformation of customer service in the logistics management system of the enterprise has been determined. It has been proven that in modern business conditions, it is profitable to formulate and implement digital strategies that manage partnerships with consumers, networks and stakeholders, in accordance with the institutional theory and evolutionary paradigm of the information economy, the concept and theory of interactive marketing. The issue of the need to develop and implement a digital strategy that manages partnership relations with consumers, the implementation of which will promote synergy, including economic, social and environmental, is outlined.

Keywords: *enterprise, logistics activity, customer service, information and communication technologies, CRM-system, digital economy.*

Introduction. Over the last ten years, the paradigm of logistics management of enterprises has changed towards a system of managing relationships with consumers. This is due to the rapid development of the digital economy, the use of a client-oriented approach, the transition to the concept of relationship marketing, which is based on the implementation of a partnership model, the support and strengthening of cooperation with various groups of stakeholders, consumer loyalty and satisfaction with the quality of logistics and customer service.

This is confirmed by the research results of various international consulting agencies and analytical centers. Together with experts from the British Institute of Economic Research, Oxford Economics, PwC demonstrated that investments in digital transformation mainly help to improve the quality of customer service (40 % of respondents). IT managers of 100 large companies in the financial, telecommunications, oil and gas, and other sectors of economic activity named the main goal of digitalization primarily to increase customer satisfaction (58 % of respondents).

According to a report compiled by IDG Communications, Inc. based on information from 700 senior executives, digitalization is a means of improving customer service (46 percent of respondents). According to a survey of 528 managers and experts in the strategic management of digital transformation conducted by the consulting company Altimeter-Prophet, the main efforts are aimed at improving the system of contact with consumers (54 % of experts). According to Simpler Media, 79 % of 325 CIOs consider DCX (Digital Customer Experience) to be an extremely important tool for their business.

According to Gartner estimates, most companies today compete mainly on the indicator "Quality of logistics customer service". According to a survey conducted by Accenture Digital, approximately 89 % of companies consider customer service to be a key competitive advantage. Experts have calculated that keeping an existing client costs 2 times less than attracting a new one.

According to Forbes, 84 % of companies that work to improve customer service and logistics services see an increase in profits. According to experts, a customer-oriented business is 60 % more profitable than other businesses.

The conclusions of Ukrainian scientists show that for every 5 % increase in the number of consumers loyal to the company, the profit increases from 25 % to 85 %, depending on the type of economic activity (Hutsaliuk et al., 2015). According to some other colleagues, with the growth of loyalty, the propensity of consumers to perceive the behavior of competitors decreases

(Vasylychev, 2017; Hutsaliuk et al., 2022; Melnychenko et al., 2013).

According to calculations by the European Society of Marketing Research Professionals, one loyal customer is 11 times more profitable than 11 random customers. At the same time, it has been proven that attracting a new customer is eight times more expensive than encouraging an existing one to make a repeat purchase. At the same time, it is worth noting that more than 80 % of company managers are confident that their customer service is at a high level. But only 18 % of customers agree with this statement.

In view of this, the problems of transformation of customer service as a key component of logistics management of enterprises in the context of the digital environment remain relevant and require further research.

Analysis of recent research and publications. The issue of using the possibilities of the Internet in the activities of enterprises is covered in a number of works by Ukrainian and foreign theoreticians and practitioners, among whom are S. Melnychenko, K. Sheenkova etc. (Melnychenko et al., 2013).

The theoretical and practical foundations of the development of electronic business and electronic commerce as its component are considered in the works of scientists D. Vasylychev (Vasylychev, 2017), K. Velichko, L. Nosach, O. Pechenka and others (Velichko et al., 2017). The issue of the implementation of certain types of Internet technologies was examined in the studies of N. Savytska (Savytska, 2014), O. Shchedrina, M. Agutin (Shchedrina et al., 2019) and others. The study of the features of the CRM system and its differences from other information systems H. Sandiuk, Yu. Lushpiienko, N. Trushkina, I. Tkachenko, E. Kurganskaya (Sandiuk et al., 2019).

I. Klimova studied the issue of logistics management and the analysis of the components of logistics management, as well as the analysis of the essence and components of logistics strategies at enterprises. From her point of view, this is the implementation of the main logistics processes, that is, the coordination of activities with the operational calendar plan for the supply of raw materials; activities with a physical distribution plan during production; economic activity with a marketing plan during product sales, demand forecasting, service, operational calendar planning, processing customer orders, warehouse and transport work (Klimova, 2016).

The basis of the company's customer orientation is a deep understanding of the consumer's interests, since the defining emphasis is on focusing on his needs and methods of satisfying them. Thus, K. Cochran characterizes customer orientation as one of the main values of a business that strives for survival and prosperity (Cochran, 2009), and according to B. Ryzhkovskiy, customer orientation is a tool for managing relationships with the client aimed at obtaining stable profits in the long term (Ryzhkovskiy, 2005).

I. Patlakh sees customer orientation as a tool that allows the company to get loyal customers and is aimed at obtaining sustainable profits in the long term (Patlakh, 2011). Applied aspects of the application of digital technologies in the activities of enterprises (including for improving the system of managing relationships with consumers) and substantiation of scientific and methodological approaches to evaluating the effect of their implementation N. Trushkina, H. Dzwigol, O. Serhieieva, Yu. (Trushkina, 2020).

However, the issue of the use of Internet technologies in various spheres of society's functioning is currently the most researched, which is determined

by the rapid pace of development of electronic business in the global environment.

The rapid pace of development of the digital economy, the growing level of its penetration into all spheres of social life require further research in order to study its most modern trends in the context of managing relationships with consumers and implementing them into the practical activities of enterprises.

The purpose of our article is to justify the feasibility of applying a comprehensive approach to the transformation of customer service in the logistics management system of enterprises in the conditions of the digital economy.

Formulation of the main material. The Ubiquitous Internet is a network that connects people, processes, information and goods. The more likely it is, the more objects are associated with it. The emergence of the World Wide Web was made possible by a combination of technological changes such as the Internet, increased mobility, the advent of cloud computing, and the growing role of big data.

A statistical analysis was carried out and it was established that the problems of using digital (information and communication) technologies for the transformation of the management system of relationships with consumers are relevant at Ukrainian enterprises in the last decade (Table 1). Thus, according to the State Statistics Service of Ukraine, the number of enterprises that had access to the Internet increased by 10.6 % in 2019-2021. The number of enterprises that used the Internet to obtain information about goods and services increased by 12.7 %, and to send or receive messages by e-mail – by 11.2 % (Fig. 1).

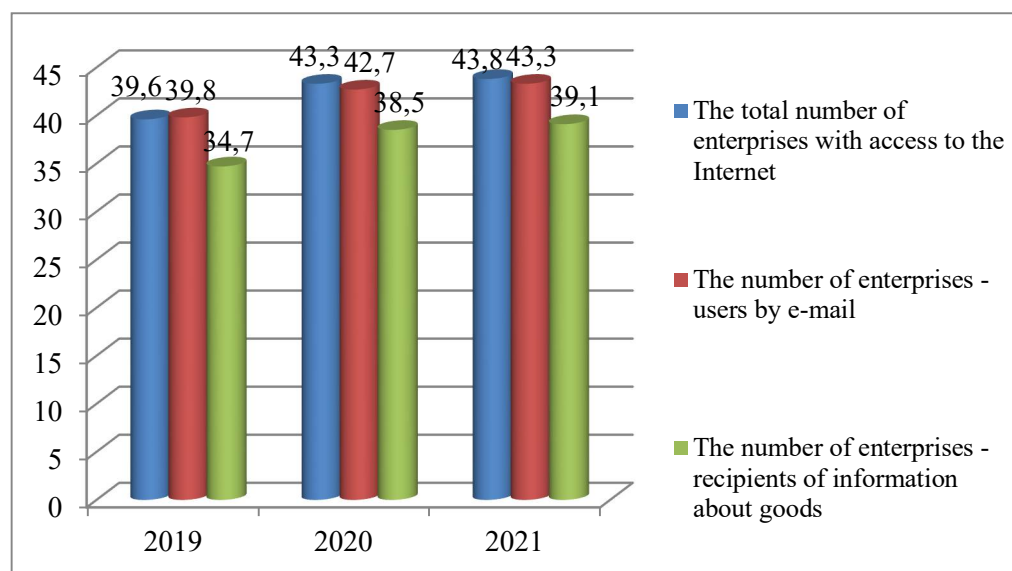


Fig. 1 – Directions for using the Internet in the enterprise management system (thousands)

Source: compiled on the basis of statistical and informational materials of the State Statistics Service of Ukraine, 2020, 2021, 2022

During the researched period, the number of enterprises that used the website to organize their logistics activities increased by 10 %. This happened due to the increase in the number of enterprises in which the website provided the following opportunities: forming an order for goods online – by 16 %;

personalized information content of the website for regular customers – by 15.7 %; customer service – by 13.8%; monitoring the status of placed orders – by 13.7 %; supply of products online – by 11.8 % (Table 1).

Table 1

Website capabilities when using the Internet at enterprises (thousands)

Indexes	Years		
	2019	2020	2021
Total number of enterprises	16,23	17,5	17,8
Including for:			
customer service	7,5	8,3	8,5
delivery of products online	2,8	3,1	3,1
forming an order for goods online	4,5	5,1	5,2
monitoring the status of placed orders	4,1	4,5	4,6
personalized information content of the website for regular customers	4,0	4,6	4,7

Source: compiled on the basis of statistical and informational materials of the State Statistics Service of Ukraine, 2020, 2021, 2022

For 2019-2021, the number of enterprises that used social media to receive consumer feedback or provide answers to their orders increased by 27.7 %; involvement of clients in development or innovative activities – by 25.6 %; cooperation with various groups of stakeholders – by 20.9 % (Fig. 2).

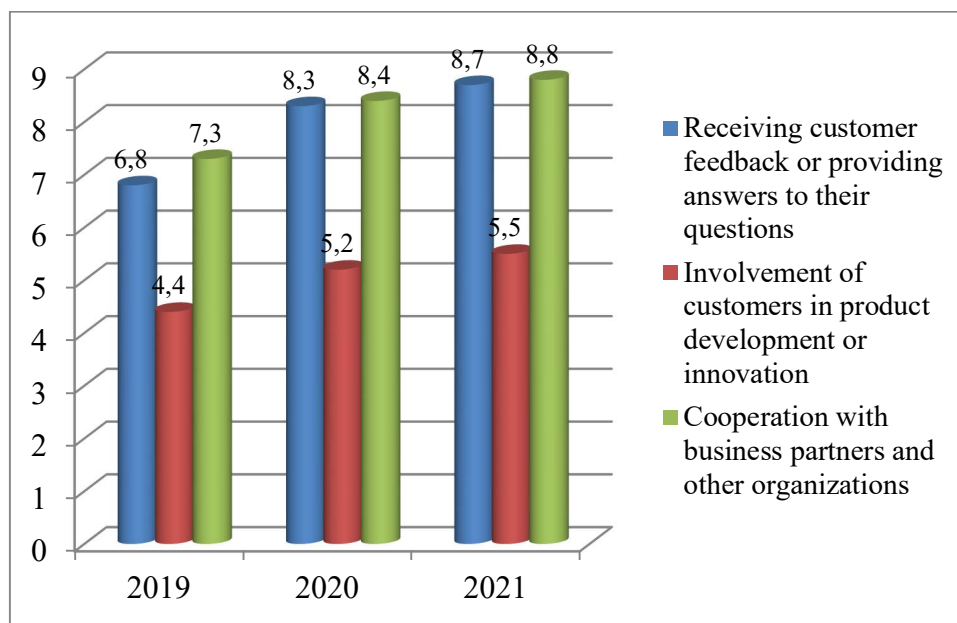


Fig. 2 – The main purposes of using social media at enterprises (thousands)

Source: compiled on the basis of statistical and informational materials of the State Statistics Service of Ukraine, 2020, 2021, 2022

During this period, the number of enterprises that purchased customer relationship management software increased by 38.4%. And their specific weight in the total number of this group of enterprises that bought cloud computing services increased by 2.5 percentage points (Fig. 3).

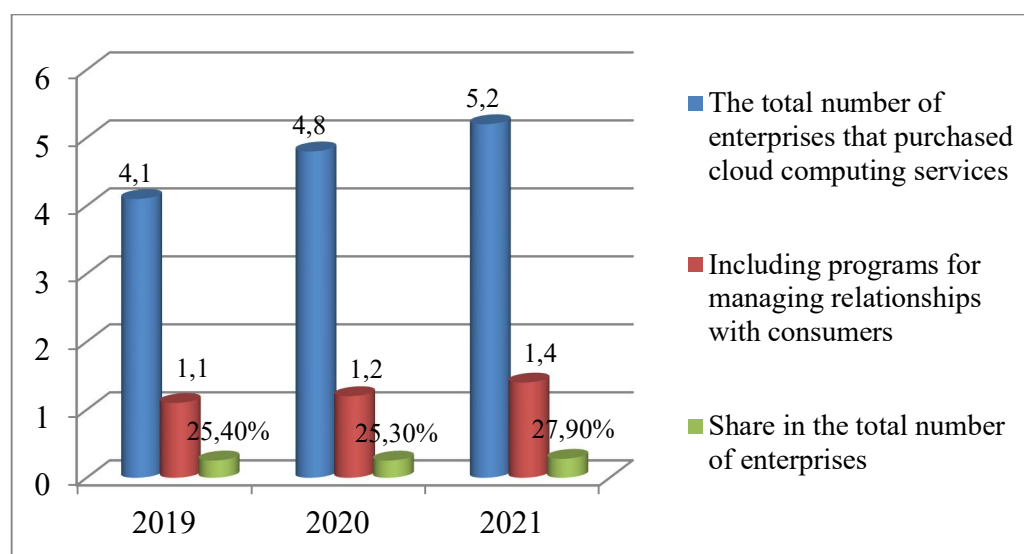


Fig. 3 – Use of cloud computing services

Source: compiled on the basis of statistical and informational materials of the State Statistics Service of Ukraine, 2020, 2021, 2022

The number of enterprises that carried out electronic trade increased in 2021 by 0.7 % compared to 2021. The number of enterprises purchasing goods via the Internet increased by 24.5 %. The number of enterprises that received orders through the Internet for the sale of products decreased by 6 %. The specific weight of the volume of products sold, obtained thanks to electronic trade, increased by 1.5 percentage points, or from 3.5 to 5 % of the total volume of products sold by enterprises (Table 2).

Table 2

Electronic commerce via the Internet

Indexes	Years		
	2019	2020	2021
The number of enterprises that carried out electronic trade (thousands)	2,4	2,4	2,5
in % to the total number of enterprises	5,0	4,8	4,9
The number of enterprises that received orders via the Internet for the sale of products or services (thousands)	2,5	2,6	2,7
The number of enterprises that purchased goods or services via the Internet (thousands)	8,2	9,6	10,1
The volume of sold products (goods, services) obtained from electronic trade, UAH billion.	228,0	292,7	364,6
in % to the total volume of sold products (goods, services) of enterprises	3,5	4,5	5,0

Source: compiled on the basis of statistical and informational materials of the State Statistics Service of Ukraine, 2020, 2021, 2022

Thus, as the analysis of statistical data shows, modern information and communication technologies and systems are actively used at domestic enterprises of various spheres of economic activity. This, in turn, will affect the organization of logistics processes in the era of transformational changes and digital transformations.

However, despite the positive trends of increasing the number of Ukrainian enterprises that implement information technologies in the organization of logistics processes, as a result of their own research (Trushkina et al., 2020) it has been proven that the effective transformation of customer service is held back by a number of barriers, which can be conventionally classified into the following groups:

- market: constant fluctuations in sales market conditions; instability of consumer demand for finished products;

- marketing: insufficient consideration of service features of different categories of consumers depending on the specifics of the enterprise's activity; imperfection of the contractual activity of enterprises; ineffective use of marketing communication tools; lack of a generally accepted approach to the terms "logistics service", "logistics service", "customer orientation", "customer service", "loyalty", "customer experience"; insufficient application of a client-oriented approach to customer service and logistics service;

- organizational: lack of a clearly defined digital transformation strategy, vision of the company's digital future, and leadership deficiencies; inability to manage organizational and transformational changes; lack of a digital strategy for managing relationships with consumers; low level of employee involvement; lack of qualified and competent personnel that would meet the modern requirements of digitalization of the economy;

- informational: lack of a unified approach to the definition of a categorical and conceptual apparatus (for example, "digital economy", "digital transformation", "digital transformation of business processes", "digital transformation of customer service", etc.); insufficient knowledge and skills in the digital economy; insufficient use of digital technologies and electronic platforms to manage relationships with consumers.

To eliminate the barriers listed above, it is advisable to implement effective tools for the transformation of customer service, one of which is the information system for managing relations with consumers (CRM, Customer Relationship Management). The essence of this technology is to increase the efficiency of managing relationships with consumers, i.e. using a client-oriented approach, turning neutral buyers into loyal customers, forming business partners from regular consumers, attracting new and retaining existing customers (Fig. 4) (CRM, 2017).

The goal of Social CRM is to create a public ecosystem to better understand what customers want and how they interact with a company's various touch points, such as sales and customer service. Thanks to this, we build closer relationships with our customers and connect them to our company.

CRM systems on the Ukrainian market have been developing rapidly in recent years. One of the main principles of modern business is customer orientation, therefore, depending on your industry and goals, numerous CRM solutions available on the domestic market will allow you to achieve maximum efficiency in managing customer relationships (What is a CRM system, 2022).

The essence of managing relationships with consumers	Tool
	Method
	Technology
	Strategy
	A special approach to doing business
The key goal of implementing a CRM-strategy	Creation of sales networks, models and logistics systems with the attraction of new customers and the maintenance and development of existing ones
Types of basic CRM-systems and tools	Formation of various digital-channels
	Creation of a digital profile of customers, which is managed in the company's Customer Data Platform
	Creation of a single low-code platform for sales, marketing and customer service
	Formation of an environment with the integration of all digital channels, retail points and back-office into a single digital space

Fig. 4 – The essence and tools of digital technologies of client-oriented service in the enterprise management system

Source: (CRM, 2017)

The CRM system provides tools for the interaction of managers and customers to increase sales, identify the most profitable groups of consumers, monitor and analyze employees and their work efficiency, automate business processes and improve productivity in all departments. The ability to develop the company's existing potential, create a unified communication space for employees, and quickly respond to changing consumer and market needs.

In order to digitally transform customer service in the logistics management system of enterprises, it is advisable to use a comprehensive approach, which consists in the integration and symbiosis of systemic, process, functional and situational approaches to managing relationships with consumers in the context of partnership marketing (Fig. 5).

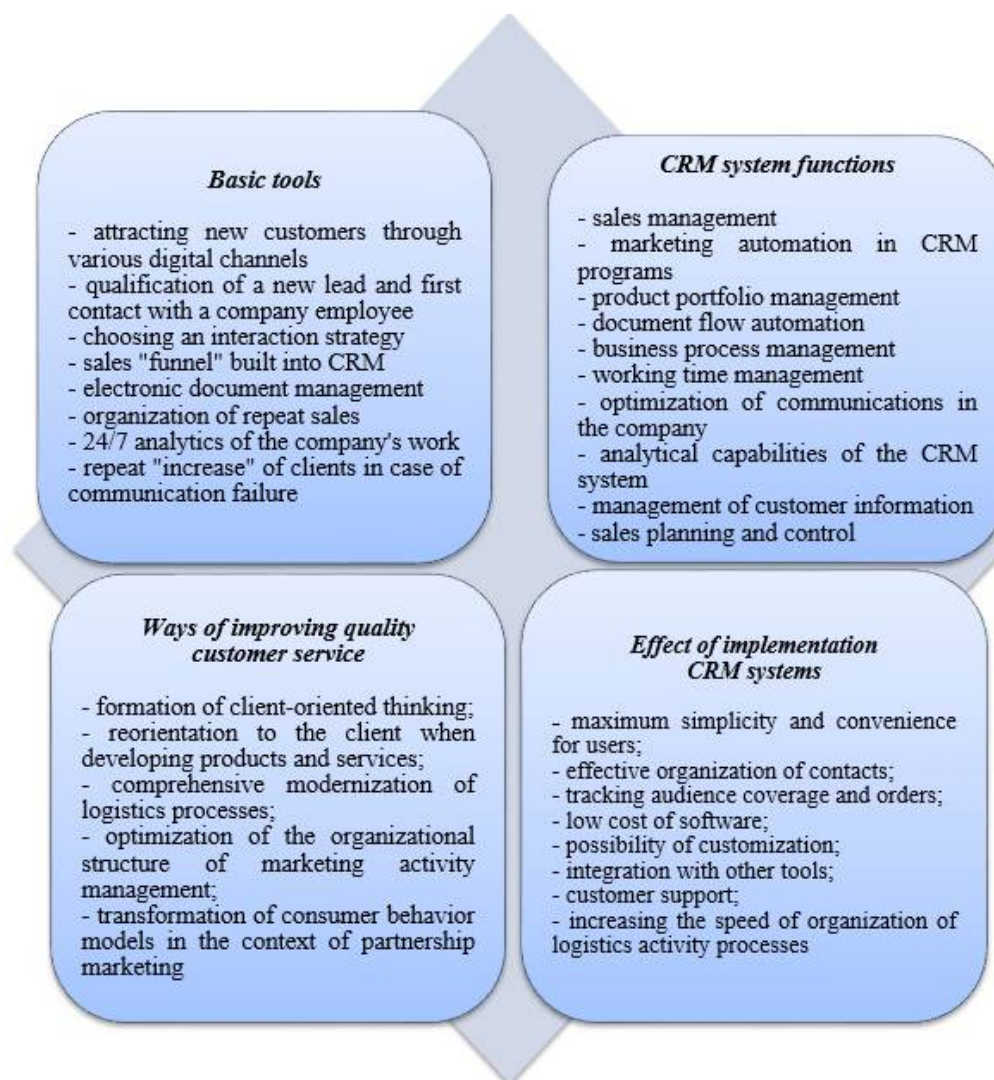


Figure 5 – A comprehensive approach to the transformation of the client-oriented service of logistics activities in the management system of enterprises in the conditions of digitalization

Source: based on (CRM, 2017)

The transformation of customer service in the era of digital transformation will contribute to obtaining a synergistic effect determined by the formula 1 (Vasylychev, 2017; Melnychenko et al., 2013):

$$E = \sum_{ij=1}^n E_j(y_{11}, y_{12}, y_{13}, y_{14}, y_{15}) + E_2(y_{21}, y_{22}, y_{23}) + E_3(y_{31}, y_{32}, y_{33}) \rightarrow \max \quad (1)$$

Where:

E_1 – economic effect:

y_{11} – increase in average profitability from the organization of logistics activities by 15-20 %;

y_{12} – increase in consumer retention rate by 5 %;

y_{13} – reduction of time for performing current operations by 25-30 %;

y_{14} – increasing the accuracy of forecasting the volume of product shipment to 99 %;

y_{15} – reducing sales, marketing and customer support costs by 10-15 %;

E_2 – social effect:

y_{21} – optimization of the work of the company's employees;

y_{22} – increasing the speed of processing consumer orders and the level of information security;

y_{23} – reduction of time spent on organizing information exchange between the enterprise and various categories of stakeholders;

E_3 – ecological effect – reduction of negative impact on the environment as a result of:

y_{31} – improvement of conditions of transportation and storage of products;

y_{32} – application of the concept of industrial waste management in the context of circular economy;

y_{33} – implementation of «green» technologies in production.

The use of the Internet has a significant impact on the performance of enterprises. However, not all enterprises of Ukraine use such advantages to the full extent.

Conclusions. Based on the above, it can be assumed that the intensity of the use of information systems and digital technologies, the digitalization of the organization of logistics processes, the increase in the volume of electronic commerce, the personalization of logistics services. The integration of new users into the Internet requires a fundamental search for new approaches, the transformation of customer service into a logistics management system.

The results of the study show that in modern business conditions it is beneficial to formulate and implement digital strategies that manage partnerships with consumers, networks and stakeholders, in accordance with the institutional theory and the evolutionary paradigm of the information economy, the concept, the theory of interactive marketing, which should include the following elements use of information tools and digital channels (types of CRM systems, electronic platforms, software products, various options of digital channels); formation of a qualitatively new culture of marketing communications (integration of CRM systems into the IT architecture of companies; integration of digital channels of marketing communication into a single system); analysis of the situation and development of the general concept of digital transformation; directions for improving the quality of customer service (forming the mindset of customer-oriented service; refocusing on the customer in the development of products and services; comprehensive modernization of business processes; digitalization, machine learning and robotics to increase the speed and efficiency of the organization of logistics activity processes; optimization of the organizational structure of marketing campaign management; changes in customer behavior models;

creation of digital customer profiles managed on customer data platforms; creation of «smart» chatbots based on artificial intelligence; Optimization of retargeting; Integrated channels, retail points and back offices into a single information space, that is, communication is used as a key tool of a client-oriented model of partnership with consumers.

Undoubtedly, some aspects of customer-oriented logistics activities, digital service technologies in the considered enterprise management system do not fully solve all problems. Therefore, the prospects for further research involve the analysis of this problematic situation in the context of corporate marketing strategies in the conditions of the digital economy.

Conflict of Interest and other Ethics Statements.

The authors declare no conflict of interest

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**ВИДОЗМІНИ ЦИФРОВИХ ТЕХНОЛОГІЙ
КЛІЄНТООРІЄНТОВАНОГО СЕРВІСУ ЛОГІСТИЧНОЇ
ДІЯЛЬНОСТІ В СИСТЕМІ МЕНЕДЖМЕНТУ ПІДПРИЄМСТВА**

Анотація. У дослідженні розглянуто особливості використання інформаційних систем та цифрових технологій, цифровізація організації логістичних процесів, збільшення обсягів електронної комерції, персоналізація логістичних послуг, а також управління взаємовідносинами зі споживачами підприємств різних видів економічної діяльності. Ці питання особливо актуальні в умовах стрімкого розвитку цифрової економіки.

Продемонстровано доцільність комплексного підходу до трансформації обслуговування клієнтів у системах управління логістикою підприємства в цифрових умовах. Проведено статистичний аналіз показників, що характеризують рівень використання інформаційно-комунікаційних технологій в організації логістичної діяльності підприємства.

Сформульовано основні бар'єри цифрової трансформації обслуговування клієнтів, умовно згруповані на маркетингові, інформаційні та організаційні. Визначено, що для усунення вище перелічених бар'єрів доцільно впроваджувати дієвий інструментарій трансформації клієнтського сервісу, одним із яких є інформаційна система управління взаємовідносинами зі споживачами (CRM, Customer Relationship Management).

Визначено доцільність використання інформаційної системи та цифрових технологій для комплексної трансформації обслуговування клієнтів в системі управління логістикою підприємства. Доведено, що в сучасних умовах ведення бізнесу вигідно формулювати та впроваджувати цифрові стратегії, які керують партнерством із споживачами, мережами та зацікавленими сторонами, відповідно до інституційної теорії та еволюційної парадигми інформаційної економіки, концепції, теорії інтерактивного маркетингу.

Окреслено питання необхідності розробки та впровадження цифрової стратегії, яка керує партнерськими відносинами зі споживачами, реалізація якої сприятиме синергії, включаючи економічну, соціальну та екологічну.

Ключові слова: підприємство, логістична діяльність, клієнтський сервіс, інформаційно-комунікаційні технології, CRM-система, цифрова економіка.