

Digital Solutions and Innovative Approaches in Enterprise Business Processes: A Regional Analysis

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Abstract

The article considers the main theoretical and applied aspects of strategic management of the development of e-commerce and marketing and logistics enterprises of the region. The main theoretical approaches to determining the essence of e-commerce and its importance for the development of economic relations are summarized. business companies. The importance of the mechanism of strategic management of the development of e-commerce at the regional level, which should be oriented towards modern innovative technologies, has been substantiated. The world trends in the development of e-commerce and marketing and logistics activities of enterprises under the influence of digitalization processes have been analyzed. The main stages of the mechanism of strategic management of the e-commerce development within the transformation of marketing and logistics activities of enterprises in the region have been summarized. The advantages of strategic and adaptive management of e-commerce development both for the region and for individual marketing and logistics enterprises are studied. A classification of the main factors of strategic development of e-commerce enterprises in the region by political, economic, socio-demographic and innovative characteristics is provided. Strategic priorities that should be included in the program documents of the regional level are proposed.

Keywords: Innovations, Strategy, Strategic Management, Digital Solutions, Digital Technologies, Marketing, Logistics, E-Commerce, Enterprise, Self-Development, Business Landscape, Mechanism, Public Administration, Region.

Introduction

The impact of digital technologies on all spheres of human life is undeniable. For enterprises in the region, it is relevant to search for competitive advantages and introduce innovative technologies, especially in the context of the rapid development of digital solutions. The global digitalization has both disadvantages and advantages that enterprises must study and implement in their activities, because they

allow them to simplify business processes, reduce costs and respond faster to market changes. E-commerce plays a special role, which serves as an effective sales tool, simplifies access to new markets and helps to establish more effective communication with consumers. For regional businesses, e-commerce serves as an effective tool for continuing to work even in difficult conditions of martial law.

Therefore, the study of innovative approaches and digital solutions in business processes, in particular through the development of e-commerce, is important and relevant. The study of e-commerce is a necessary condition for the formation of the innovation potential of enterprises in the region, increasing their efficiency, flexibility and ability to sustainable development in the digital economy.

The article is aimed at studying innovative approaches and substantiating digital solutions in the business processes of enterprises in the region.

Literature review

Rapid technological development and growing competition require enterprises to be adaptable and flexible in all business processes without exception.

Within the framework of the research of Lin M. et al. (2026), Hernan Ramirez E. et al. (2026) the current challenges and opportunities of digitalization and innovative efficiency were considered. Li B. et al. (2026); Cheng X.-M. et al. (2025) analyzed the impact of orientation on digital sustainable development and innovation in developing enterprises, investigated the current possibilities of digitalization. Zhou H., et al. (2025); Zhang J. et al. (2025); Abramova A. et al. (2021) analyzed digitalization, green innovation, and green transformation of enterprises, and also studied the impact of digitalization on organizational flexibility and innovativeness of enterprises.

Xiang D. et al. (2025); Srisathan W. A. et al. (2025) investigated innovative development of enterprises based on the quasi-natural experiment approach, analyzed the interaction of open eco-innovations. Rosyidiana R. N. et al. (2024); Amir A. M. et al. (2024) outlines the impact of innovations on the financial performance of the enterprise,

analyzes the features of digitalization as an innovative approach focused on the sustainability and development of enterprises. Mari nR. et al. (2023); Vovk O. et al. (2021) presents the features of digitalization of the value chain and the role of technological development as a catalyst for innovation in enterprises.

Radicic D. et al. (2023); Kilay A. L. et al. (2022) demonstrated the restraining effect of digitalization on the use of industrial robots and the innovative efficiency of enterprises, analyzed the consequences of open innovations. Tong M. et al. (2023); Yordanova Z. (2022) assessed the impact of digitalization on the use of industrial robots and the innovative efficiency of enterprises, and investigated the role of the enterprise information system for digitalization and the organization of innovations. Zheng H. et al. (2025); Ruan Z. et al. (2025) analyzed the mechanism of the impact of digitalization on technological innovations, and investigated the features of ensuring supply chain flexibility through digitalization and digital potential. Riaj M. A. J. et al. (2024); Li J. et al. (2024) examined the digital transformation of entrepreneurship and the role of green innovation, and presented an empirical study of digitalization. Qin J. et al. (2024); Qiu W. et al. (2026) investigated the process of balancing exploitative and research innovations in enterprises, analyzed the role of digitalization in the efficiency of enterprise activities, and studied the features of state digitalization and enterprise innovations in high-tech companies in China.

However, despite the existing research, the issue of studying modern innovative approaches and analyzing digital solutions in the business processes of modern enterprises in the region requires further in-depth research.

Methodology

To quantify the impact of digital solutions on the efficiency of business processes of enterprises, a system of indicators characterizing the level of digitalization, economic efficiency and logistical efficiency is used (Table 1).

Table 1. Methodology for calculating business process performance indicators

Indicator	Formula/Calculation Method	Unit of measurement
Volume of products sold	Total sales volume for the year	million USD
Share of repeat purchases	$\frac{\text{Customers with repeat purchases}}{\text{Total number of customers}} \cdot 100$	%
Sales conversion	$\frac{\text{Successful sales}}{\text{Number of hits}} \cdot 100$	%
Share of online sales	$\frac{\text{Online Sales}}{\text{Total Sales}} \cdot 100$	%
Number of new products	\sum of new products introduced by enterprises	units
Share of innovations in the assortment	$\frac{\text{Innovative Products}}{\text{General Assortment}} \cdot 100$	%
Implementation of digital solutions	$\frac{\text{Enterprises with Digital Solutions}}{\text{Total}} \cdot 100$	%
Business process automation	$\frac{\text{Enterprises with automated processes}}{\text{Total number}} \cdot 100$	%
CRM implementation	$\frac{\text{Enterprises with CRM}}{\text{Total Number}} \cdot 100$	%
ROI of strategic measures	$\frac{\text{Additional Event Profit}}{\text{Event Cost}} \cdot 100$	%

Source: formed by the authors on the basis: Christopher M. (2016), Chaffey D. et al. (2022), OECD (2024)

The proposed methodology for studying the effectiveness of the use of innovative and digital solutions in business processes of enterprises provides for a comprehensive calculation of quantitative and qualitative indicators that will allow assessing marketing and logistics activities, innovative activity and the level of digitalization. To assess marketing effectiveness, the methodology provides for the calculation of the volume of products sold, average order processing time, delivery accuracy, share of repeat purchases and customer satisfaction (CSAT), while the volume of products sold is taken from the official statistics, and other indicators are determined on the basis of aggregated sample surveys and industry reviews. Innovation activity is estimated using the number of new products and the share of innovations in the assortment, calculated using statistical reports of enterprises and published reviews of innovation activity. The level of digitalization and implementation of digital solutions is determined through indicators of the share of enterprises with business process automation and CRM/ERP systems, using OECD data, industry reports, and academic publications. In addition, the methodology provides for the calculation of the ROI of strategic measures, the timeliness

of the response to deviations and the level of adaptation to market changes according to standard formulas.

Taking into account the peculiarities of the current situation, the analysis will be carried out in Ukraine as a whole, since the choice of a specific region for the study is not correct in wartime. At the same time, different regions can apply the proposed measures according to their own conditions and resources, which makes the results of the study relevant for a wide range of enterprises.

In addition, empirical analysis makes it possible to identify the relationships between various indicators and assess the effectiveness of strategic management measures in real conditions of the Ukrainian market, taking into account both endogenous and exogenous factors. This will allow not only to quantify the results of digital transformation and innovation activities, but also to formulate practical recommendations for optimizing business processes, increasing competitiveness and rational use of resources in different regions of the country. Thus, empirical analysis is a key element of the study, since without it it is impossible to confirm the effectiveness of innovative and digital solutions in specific conditions of Ukraine and reasonably

determine the directions for further development of enterprises in the digital and innovative context.

Results

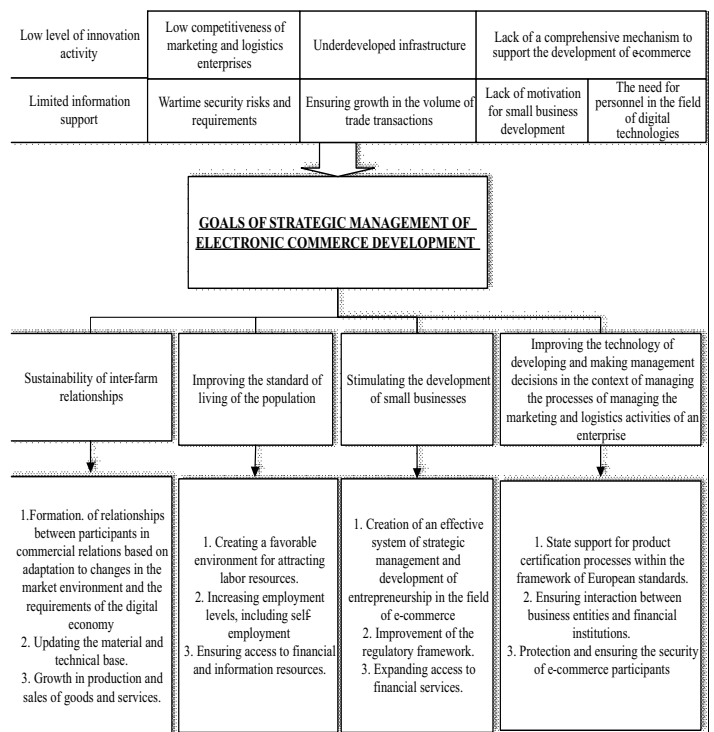
E-commerce is actively spreading in all spheres of economic and social life. At present, its development is at the stage of intensity, which is manifested in the spread of the use of electronic data interchange, electronic transfers of funds between the parties to a business transaction, the development of electronic commerce, marketing activities and electronic financial services. The generalizing technology of e-commerce is the interaction between entities through the use of information networks. Most often, e-commerce is related to the process of selling goods and services. The introduction of digital technologies, in particular e-commerce, into the marketing activities of companies, is an incentive to increase investment attractiveness.

The spread of e-commerce is due to the orientation of entrepreneurial activity to the use of new productive technologies and the introduction of scientific achievements that are inherent in the information environment instead of the traditional economy. Thus, virtual reality is a manifestation of society's needs for modernization and improvement of the economic component of social relations.

A strategic innovative approach provides an opportunity to take into account differentiation in the management of marketing and logistics operations, which is due to a specific type of product and minimize possible risks. Thus, in relation to low-risk goods, logistics processes in the e-commerce system are more efficient than in relation to high-risk goods (as a rule, these are expensive goods, which include household appliances, antiques, etc.). Efficiency depends on the optimal location of key logistics infrastructure facilities. If the location of logistics hubs is optimal, it will be natural to reduce the total costs in the distribution network, increase the transit potential of the region, its self-development and investment attractiveness, and integrate the region into the global supply chain (Grewal D. et al., 2016). Strategic management of the development of e-commerce has problems and advantages (Fig. 1).

Thus, among the factors of socio-economic development of the region in the strategic aspect, e-commerce plays a leading role in solving the problems of employment, improving the level and quality of life. In modern conditions, e-commerce reduces the cost of organizing entrepreneurial activities, reduces unemployment, saturates the market with the necessary goods and services, solving the problem of shortage. Small and medium-sized businesses receive an impetus for the development and maintenance of market position thanks to marketing and logistics activities based on digital technologies.

Figure 1. Concept of strategic management of innovative development of e-commerce



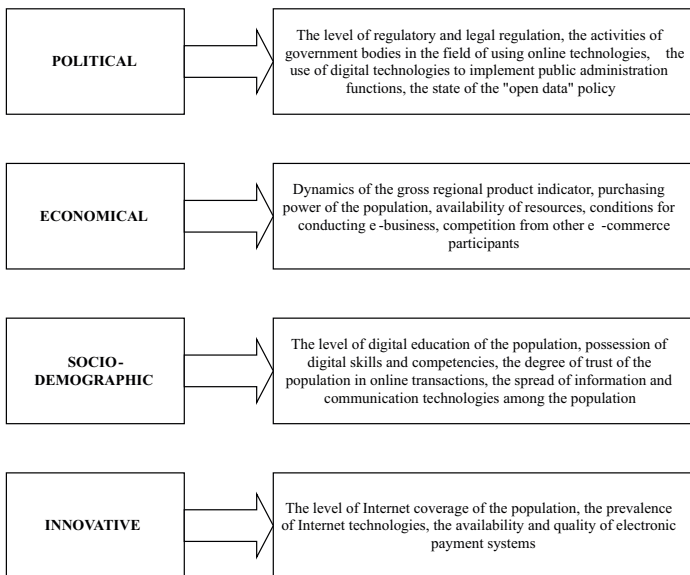
Source: developed by the authors

At the same time, economic and social relations are becoming closer, intensifying the business activity of all sectors and spheres of the economy. Reaching a new level of competitiveness of those enterprises operating on the basis of e-commerce technologies stimulates other business structures to actively participate in business transactions. In addition, e-commerce contributes to the implementation of the SDGs, which is a global concept of today. E-business is an important factor in sustainable

economic growth, contributing to effective social development, especially in the context of interaction between business entities and regional authorities.

It is advisable to single out the main factors of strategic development of e-commerce enterprises in the region according to political, economic, socio-demographic and innovative characteristics (Fig. 2).

Figure 2. Factors of strategic development of e-commerce at the regional level



Source: systematized by the authors

Therefore, the purpose of strategic and adaptive management of the development of e-commerce at the regional level is to carry out appropriate reforms that will contribute to the optimization of state regulation, creating optimal conditions for the spread of e-commerce as a leading marketing technology under the conditions of creating an appropriate institutional environment. We propose the following strategic priorities that should be included in the program documents of the regional level:

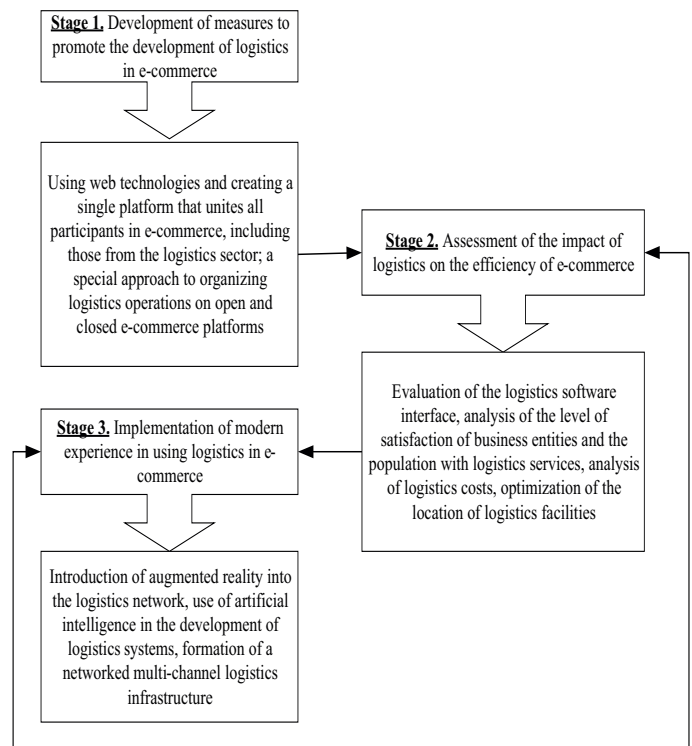
- 1) protection and ensuring the safety of e-commerce participants as the basis for intensifying investment activities;
- 2) improving financial infrastructure and expanding access to financial services for e-commerce entities;
- 3) support for staffing of business structures,

development of skills and competencies in digital entrepreneurship entities.

The mechanism of strategic management of the e-commerce development should be focused on modern innovative technologies, the use of which in marketing and logistics activities is due to the needs of the market and the general world market under the influence of digitalization. Thus, the priority areas of logistics use in e-commerce are considered to be artificial intelligence, cloud computing, the introduction of augmented reality elements, and the improvement of logistics information support based on integration with other software products in the production cycle of e-commerce.

Figure 3 summarizes the main stages of the mechanism of strategic management of the e-commerce development in the context of the transformation of marketing and logistics activities of enterprises in the region.

Figure 3. Stages of implementation of the mechanism of strategic management of the development of e-commerce at the regional level



Source: developed by the authors

In the institutional aspect, it is expedient to create an entrepreneurial ecosystem as a basis for the development of e-commerce, which is possible by consolidating the efforts of state authorities, local governments, public organizations in the direction of implementing programs to support the training of e-commerce entities, develop digital infrastructure, and promote access to financial services. The creation of this business ecosystem requires the adoption of appropriate regulatory documents aimed at ensuring the protection and security of arrays of information and personal data of persons participating in electronic commerce, as well as the introduction of measures of state regulation of electronic document management. In addition, an important tool that ensures security in e-commerce is the implementation of a register of local online stores for consumers to check the legal status and availability of security at the supplier.

Training of personnel in the e-commerce and marketing and logistics activities based on digital technologies requires the development of the business landscape in the field of e-commerce.

Empirical analysis within the framework of the study of innovative and digital solutions in the business processes of enterprises will be carried out to obtain an objective quantitative and qualitative assessment of their impact on operational, marketing and financial activities. It will allow you to determine the dynamics of indicators, such as the volume of products sold, delivery accuracy, customer satisfaction, sales conversion, as well as the degree of digitalization and innovation of business processes. In addition, the analysis will make it possible to identify the relationships between indicators and assess the effectiveness of strategic management measures, which will provide the basis for practical recommendations for optimizing business processes and increasing the competitiveness of enterprises. Empirical analysis is a key element of the study, since without it it will be impossible to confirm the effectiveness of innovations and digitalization and reasonably determine the directions for further development (Table 2).

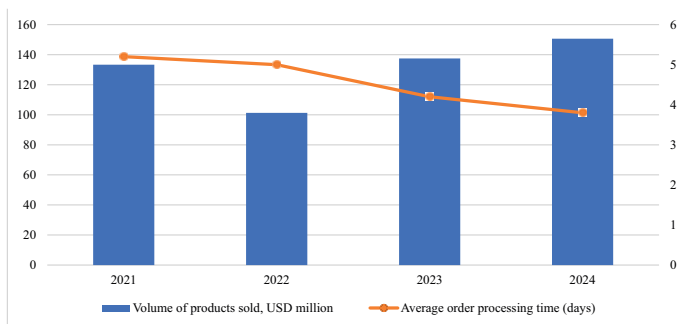
Table 2. Analysis of logistics and operational efficiency of enterprises

Indicator	2021	2022	2023	2024	Rate of change 2024 to, %		
					2021	2022	2023
Volume of products sold, USD million	133,3	101,3	137,5	150,6	+12,9	+48,5	+9,5
Average order processing time (days)	5,2	5,0	4,2	3,8	-26,9	-24,0	-9,5
Logistics costs, UAH billion	0,12	0,115	0,105	0,095	-20,8	-17,4	-9,5
Delivery accuracy (%)	88	89	93	96	+9,1	+7,9	+3,2
Order cycle time (days)	7,0	6,8	5,9	5,0	-28,6	-26,5	-15,3
Inventory level in stock (days)	15	14	12	10	-33,3	-28,6	-16,7

Source: calculated by the authors based on OECD (2024), State Statistics Service of Ukraine (2025), Association of Retailers of Ukraine (2025)

The indicators reflect the main indicators of logistics and operational efficiency of Ukrainian enterprises in the period 2021–2024. The analysis of the dynamics of the volume of products sold shows that after a fall in 2022 associated with the outbreak of war, uncertainty and economic instability, production and sales began to gradually recover, reaching USD 150.6 million in 2024, which is 12.9% higher than in 2021. This shows that businesses have been able to adapt to the new conditions by using, among other things, innovative approaches and digital tools to optimize processes (Fig. 4).

Figure 4. Indicators of operational efficiency of enterprises



Source: calculated by the authors

The average order processing time and order cycle time show a steady trend towards reduction, which is directly related to the implementation of digital logistics management systems, process automation, and the use of analytical platforms to forecast demand and optimize inventory. Reducing these metrics allows businesses to respond more quickly to changes in market demand, improving customer service and increasing competitiveness.

Logistics costs have gradually decreased during this period, which is the result of the introduction of modern digital solutions, automation of warehouse processes, and

optimization of delivery routes. At the same time, the accuracy of delivery was increasing, which reached 96% in 2024, which indicates the effective coordination of all links in the logistics chain. The decrease in inventory levels in the warehouse also demonstrates the successful integration of digital inventory management and forecasting platforms, which allows for a reduction in the volume of frozen resources and increased financial efficiency. Thus, the data confirm that the use of innovative and digital approaches in the logistics business processes of Ukrainian enterprises contributes to increasing the efficiency of operations, reducing costs and improving customer service, while ensuring adaptation to changing market conditions and exogenous influences.

Table 3 shows the dynamics of key marketing indicators of Ukrainian enterprises for the period 2021–2024. Sales increased to USD 150.6 million in 2024, indicating a recovery in economic activity and the effectiveness of marketing strategies aimed at supporting demand in difficult conditions. Customer satisfaction, measured by the CSAT methodology in points from 1 to 10, is constantly increasing, reaching a value of 8.6 points in 2024, reflecting the improvement in the quality of service and the implementation of digital tools for communication and interaction with customers.

Table 3. Analysis of marketing indicators of enterprises

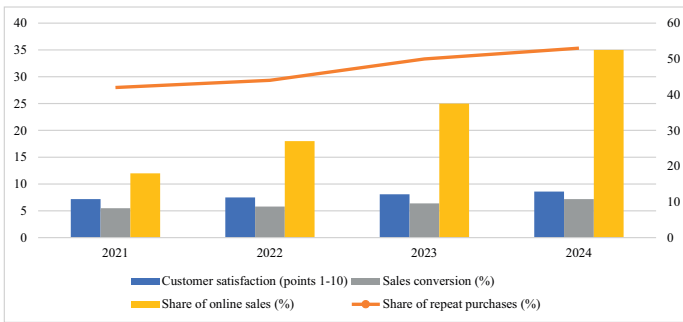
Indicator	2021	2022	2023	2024	Rate of change 2024 to, %		
					2021	2022	2023
Sales volume, USD million	133,3	101,3	137,5	150,6	+12,9	+48,5	+9,5
Customer satisfaction (points 1-10)	7,2	7,5	8,1	8,6	+19,4	+14,7	+6,2
Share of repeat purchases (%)	42	44	50	53	+26,2	+20,5	+6,0
Sales conversion (%)	5,5	5,8	6,4	7,2	+30,9	+24,1	+12,5
Share of online sales (%)	12	18	25	35	+191,7	+94,4	+40,0

Source: calculated by the authors based on OECD (2024), State Statistics Service of Ukraine (2025.), Babenko M. (2025)

The share of repeat purchases and sales conversion also show steady growth, confirming the effectiveness of digital marketing and personalized offers formed on the basis of consumer behavior analytics. Especially noticeable is the sharp increase in the share of online sales, which reached 35% in 2024, which is a direct consequence of the active

implementation of e-commerce platforms, digital promotion channels and the integration of customer relationship management systems. Thus, the indicators of Table 3 show that digital solutions allow enterprises to respond more quickly to changes in market demand and increase the efficiency of marketing business processes (Fig. 5).

Figure 5. Dynamics of marketing activities of enterprises



Source: calculated by the authors

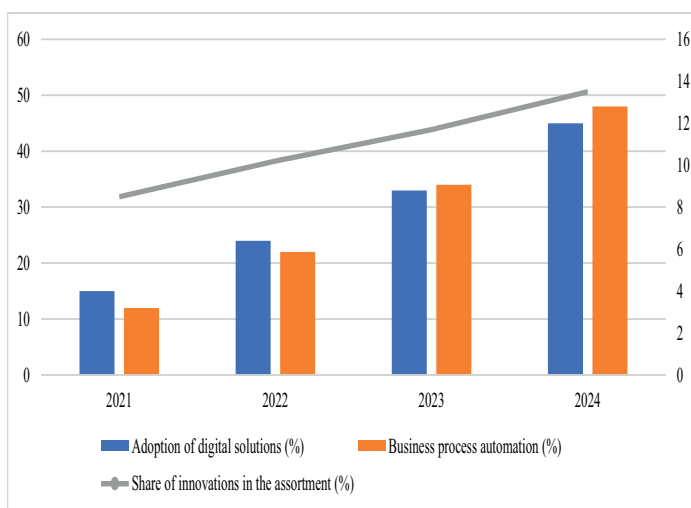
Table 4. Analysis of Innovation and Digitalization of Business Processes of Enterprises

Indicator	2021	2022	2023	2024	Rate of change 2024 to, %		
					2021	2022	2023
Number of new products	560	720	880	1050	+87,5	+45,8	+19,3
Share of innovations in the assortment (%)	8,5	10,2	11,7	13,5	+58,8	+32,4	+15,4
Adoption of digital solutions (%)	15	24	33	45	+200	+87,5	+36,4
Business process automation (%)	12	22	34	48	+300	+118,2	+41,2
CRM implementation (%)	10	18	30	44	+340	+144,4	+46,7

Source: calculated by the authors based on State Statistics Service of Ukraine (2025), Bai S. et al. (2025), ITsider (2024)

The indicators of the implementation of digital solutions, automation of business processes and CRM systems also show significant growth, reflecting the process of digital transformation of Ukrainian enterprises. Through the use of ERP systems, analytical platforms, and CRM, enterprises are able to optimize operational processes, increase the accuracy of demand forecasting, and improve customer interactions. These changes contribute to faster decision-making, increase business adaptability and create a foundation for further strategic development in the face of high market uncertainty (Fig. 6).

Figure 6. Dynamics of innovative and digital development of business processes of enterprises



Source: calculated by the authors

The indicators of Table 4 reflect the dynamics of innovation and the level of digitalization of Ukrainian enterprises. The number of new products entering the market is increasing from 560 in 2021 to 1050 in 2024, demonstrating the intensification of innovation activities and the desire of enterprises to ensure competitiveness even in difficult economic conditions. The share of innovations in the product range is gradually increasing, which indicates a focus on new market needs and an increase in the innovative value of goods and services.

The indicators given in Table 4 allow us to assess the dynamics of the overall effectiveness of strategic management and implementation of digital solutions by Ukrainian enterprises for the period 2021–2024. The overall efficiency index in 2021 was 22%, which indicates the state of integration of digital tools in enterprises at that time. Many large companies were already using ERP, CRM, and analytics platforms to manage business processes, while medium and small enterprises were in the initial stage of digitalization. A value of 22% serves as a basic starting point for comparing further changes (Table 5).

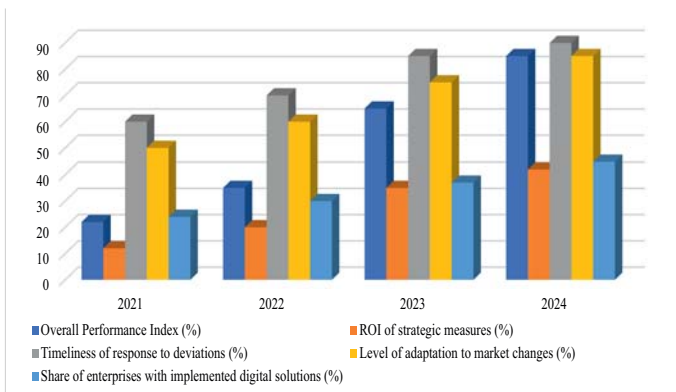
Table 5. Analysis of the effectiveness of strategic management and digital solutions of Ukrainian enterprises

Indicator	2021	2022	2023	2024	Rate of change 2024 to, %		
					2021	2022	2023
Overall Performance Index (%)	22	35	65	85	+286,4	+142,9	+30,8
ROI of strategic measures (%)	12	20	35	42	+250	+110	+20
Timeliness of response to deviations (%)	60	70	85	90	+50	+28,6	+5,9
Level of adaptation to market changes (%)	50	60	75	85	+70	+41,7	+13,3
Share of enterprises with implemented digital solutions (%)	24	30	37	45	+87,5	+50	+21,6

Source: calculated by the authors based on OECD. (2024), State Statistics Service of Ukraine. (n.d.)

In 2022–2024, there is a significant increase in the effectiveness of key indicators. The ROI of strategic measures, the timeliness of response to deviations and the level of adaptation to market changes demonstrate positive dynamics, which indicates the gradual implementation of strategic management measures and an increase in the ability of enterprises to respond to external and internal challenges. (Fig. 7).

Figure 7. Dynamics of performance indicators of strategic management and digital solutions of enterprises



Source: calculated by the authors

Particular attention is drawn to the share of enterprises with implemented digital solutions, which in 2021 was 24% and increased to 45% in 2024. This indicates a gradual process of digital transformation of business in Ukraine, which includes the integration of CRM systems, ERP, automation of operations and the use of analytical platforms. The growth of this indicator shows that strategic management in combination with digital tools helps to increase the efficiency of management decisions, optimize resources

and strengthen competitive advantages in the national market even in conditions of economic uncertainty and war.

The analysis shows that the introduction of innovative approaches and digital solutions has significantly increased the efficiency of business processes of Ukrainian enterprises, contributing to the optimization of operational and marketing activities, improving adaptability and increasing customer satisfaction. The analysis of indicators showed a gradual increase in digitalization and innovation. In general, the results of the analysis showed the feasibility of comprehensive implementation of digital solutions and strategic management as a key factor in improving business efficiency and sustainability in modern conditions. The proposed innovative and digital approaches can be applied in different regions of Ukraine according to their local conditions.

Conclusions

The use of measures of strategic management of the development of business processes is important, as it takes into account the impact of endo- and exogenous factors and threats on the marketing and logistics activities of enterprises. The strategic management toolkit allows you to respond in a timely manner to deviations in logistics activities with the simultaneous development of management decisions, and in the future to control the effectiveness of measures taken to organize logistics flows in e-commerce system. The analysis showed that the implementation of digital solutions contributes to reducing order processing times and order cycles, improving delivery accuracy, reducing logistics costs and increasing sales volumes, including online sales, as well as improving customer satisfaction.

Strategic management allows you to analyze and determine the trend of changes in the parameters of exogenous and endogenous influence, market demand, conjuncture, range of services, product innovation, as well as determine promising directions and goals of activity. The results of the study indicate a gradual increase in the overall efficiency of enterprises combined with digitalization and innovative activities: the share of new products, automation of business processes, the implementation of CRM/ERP systems, and the ability of enterprises to quickly respond to changes in the market environment are increasing.

Considering the institutional aspect of strategic management of innovative development of business processes, it should be noted that today an important task at the micro level is to provide information support for marketing to meet the needs of the customer base, which will contribute to the achievement of rationality in the functioning of marketing and logistics services. Due to the war circumstances, the study was conducted at the national level, but the results obtained and the proposed digital approaches can be practically applied in individual regions in accordance with their conditions and resource potential.

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