Digital Transformation and Strategic Development of Enterprises in The Context of Globalization

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Abstract

The aspects of digital transformation of enterprises in the context of globalization processes are considered. The methodology for studying the effectiveness of digital marketing and e-commerce operations is presented, and it is proposed to use specialized formulas that will allow for a comprehensive assessment of the effectiveness of both marketing and logistics processes. Given the rapid changes in the external environment and market requirements, digital transformation has become a real necessity for any subject of economic relations. This process causes a restructuring of organizational, technological and other processes. Therefore, enterprises create special systems of relations with stakeholders. A comparative characteristic of digitalization costs for the period 2022-2024 is carried out. The digital transformation index in Ukraine is analyzed. It is studied that digital transformation has unfolded in several areas at once: in marketing, logistics and e-commerce. The impact of the implementation of digital technologies by Nova Poshta, which is actively implementing digital solutions in marketing, logistics, and trade, was analyzed.

Keywords: Strategic Management, Adaptive Management, Enterprise, Digitalization, Innovative Development, E-Commerce, Marketing, Logistics, Region, Innovative Technologies

Introduction

In modern conditions, the competitiveness of enterprises is increasingly determined not so much by the availability of material or financial resources, but by the level of their digital readiness and ability to integrate the latest technologies into their own activities. Digitalization has become a global trend that is transforming the business environment: the structure of companies, methods of organizing transactions, the nature of interaction with counterparties and consumers are changing. Traditional business models are gradually losing efficiency, because they do not meet the requirements of speed, flexibility and personalization that customers and the market in general now expect.

The growing role of the digital economy necessitates a rethinking of key business management tasks. The use of big data tools, cloud technologies, artificial intelligence, blockchain, and the Internet of Things is shaping new approaches to organizing business processes. Automation of operational activities, omnichannel in working with customers, individualization of service, and flexible pricing are becoming not just innovative solutions, but basic conditions for maintaining market positions.

The problem of digital transformation is of particular importance for Ukraine, where the recovery of the economy after the war directly depends on the effective use of digital tools. Possession of digital assets today is becoming a source of additional competitive advantages. At the same time, the competitiveness of enterprises can no longer be assessed only by traditional criteria - price or product quality. It is determined by the company's ability to quickly respond to requests, provide high quality service, form personalized offers and build long-term relationships with customers.

Digitalization poses a number of challenges for business: uneven access to modern technologies, differences in the level of digital maturity of enterprises, the need for new personnel competencies and the willingness of companies to adapt to dynamic technological changes. On a global scale, this creates a situation where competitive advantages are formed precisely where and when digital technologies are implemented the fastest and most successfully.

Thus, the scientific problem is to determine how enterprises in the modern conditions of globalization and the digital economy can effectively implement digital technologies to ensure sustainable competitive advantages and long-term viability in the market.

Literature review

Issues of the e-commerce development and functioning of marketing and logistics enterprises are being studied by many scientists. E-commerce, marketing, and logistics within globalization and digitalization must adapt their strategies for effective operation of enterprises, ensuring their competitiveness. Arefiev S. et al. (2023) prove the need to develop conceptual principles of enterprises within digitalization. The authors (Dimitrakieva S. et al., (2023) investigated marketing and logistics management at enterprises, and assessed the impact degree on economic situation. Lagodiienko V. et al. (2023) outline main aspects of the marketing and logistics concept, and examine problems that may arise by implementing digital technologies. Spivakovskyy S. et al. (2023) analyzed benefits of digitalization and investigated how companies can successfully implement digital strategies to improve their functions in marketing and logistics.

Within the article (Sun Fei, 2024), the corporate regime of the e-commerce marketing management based on intelligent big data is analyzed. The authors analyze the impact of big data on dynamic marketing capability. Ivanova N. et al. (2022), Abramova A. (2021) paid significant attention to formation of the marketing strategy facing external challenges and analyzed peculiarities of VAT administration in e-commerce. Xiuli Ma et al. (2024) argue that modern e-commerce companies must develop the comprehensive customer-centric marketing strategy based on big data and omnichannel to promote long-term development. Urban W. et al. (2025) The adaptive management level of e-commerce at enterprises is assessed and the structural model is developed that identifies key factors that provide flexibility.

Allur Naga Sushma et al. (2025) argue that to develop SMEs in developed countries, e-commerce requires venture capital investment. The authors analyze the impact of venture capital using the propensity score matching method. Wang Y. (2025) investigated that cross-border e-commerce platforms and analyzed the concept and investigated characteristics of logistics alliances. Aljarboa Soliman (2024) and Zengdong Cao et al. (2024) demonstrated that AI application in e-commerce is very important. Wu Haiyan et al. (2024) investigate relationship between cross-border e-commerce, trade digitization, and the company's export resilience.

Given that successful e-commerce management requires integration of marketing and logistics, it should consider cost optimization, improved customer service, and reduced delivery times. This determined the choice of the research and its relevance.

Generalization of approaches of various researchers to the term "e-commerce" allows us to conclude about its exceptional urgency for development of procurement, sales, service, organization of various marketing activities based on computer technologies. In broad sense, electronic commerce is considered by authors as the entrepreneurial activity aimed at carrying out commercial transactions based on electronic means of data exchange. The study of scientific achievements of leading scientists in development of theoretical and applied approaches to use of electronic commerce tools allows us concluding that most of them consider the phenomenon of e-commerce as commercial activity carried out based on on the use of Internet technologies or as category reflecting specifics of commercial activity in various segments of the e-market. In addition, scientific community is dominated by understanding of e-commerce as one of components of e-business, which mandatory prerequisite is avaialble network of information technologies.

High intensity of marketing and logistics implemented based on digital technologies requires the study of main theoretical provisions and systematization of existing scientific approaches. Currently, modern trends in scientific research in e-commerce concern organizing marketing and logistics in e-commerce, the impact of logistics on effective e-commerce, and improvement of existing tools, technologies, and methods in e-commerce.

The purpose of the article is to develop theoretical and applied principles of strategic management of enterprise development in the sphere of e-commerce, marketing and logistics at the regional level in modern economic conditions.

Methodology

In the methodology for studying the effectiveness of digital marketing and e-commerce operations, we propose to use specialized formulas that will allow for a comprehensive assessment of the effectiveness of both marketing and logistics processes. The ROI indicator (Return on Investment) on Investment) determines the ratio of income received from marketing activities to the costs of their implementation and is expressed in percentages, which allows us to assess the return on investment in marketing. To assess the effectiveness of attracting new customers, we will use the CAC (Customer Acquisition Cost), which is calculated as the sum of all marketing costs divided by the number of new customers, which allows you to understand how much it costs to attract one customer. The LTV indicator (Customer Lifetime Value) is also important, which determines the total profit from the client for the entire period of cooperation, multiplied by the average interaction time, which allows you to plan long-term marketing strategies.

We propose to evaluate the efficiency of logistics processes through the Efficiency Indicator, which shows the ratio of logistics costs to total revenue, allowing to identify potential optimization reserves. The forecast accuracy of operations and planning is analyzed using the Forecast Formula Accuracy, which compares actual performance to forecasted performance, helping to improve sales and inventory planning. Delivery metric Reliability determines the percentage of successful deliveries out of the total, which is critical for maintaining a high level of customer satisfaction.

We will evaluate electronic commerce using E-commerce Conversion Rate, which reflects the ratio of the number of purchases to the total number of site visitors, as well as through Avg. Transaction Value, which shows the average cost of one transaction, allowing you to analyze customer behavior and the effectiveness of pricing policy. The financial result of a business is determined through Profit Margin, which reflects the ratio of revenue to product cost as a percentage and serves as a key indicator of profitability.

Table 1 summarizes the main stages, tasks, and tools used in the digital transformation of enterprises.

Table 1. Digital transformation and strategic development of the enterprise

Sphere	Transformation stage	Tasks and tools	Formulas for assessing effectiveness
Marketing	1. Data collection automation	Implementation of CRM systems, integration of Google Analytics Analytics, Big Data	$ROI = \frac{MR - ME}{E \cdot 100\%}$, MR – Marketing Revenue; ME – Marketing Expenses; E – Expenses
	2. Digital communication	Using Omnichannel, chatbots, SMM	$CAC = \frac{\Sigma ME}{NoNC}$, ME = Marketing Expenses; NoNC – Number of New Customers
	3. Analytics and optimization	Using BI systems, A/B testing	$LTV = \frac{\Sigma Pfc}{Act}$, Pfc – Profit from customer; Act – Average cooperation time
Logistics	1. Supply chain optimization	Implementation of ERP, WMS, TMS systems	$SCE = \frac{\Sigma LC}{\Sigma R}$, SCE – SC Efficiency; LC – Logistics Costs; R – Revenues
	2. Digital planning	Automated demand forecasting (AI, ML)	$FA = 1 - (Fa - Fo / Fa)$, FA – Forecast Accuracy; Fa – Fact; Fo – Forecast
	3. E-commerce in logistics	Use of e- logistics platforms	$DR = Sd / Tq$, DR – Delivery Reliability; Sd – Successful deliveries; Tq – Total quantity
Commerce	1. Online trading	Implementation of e- commerce platforms, marketplaces	$EcCR = \frac{P}{SV}$, EcCR – E-commerce Conversion Rate; P – Purchases$; SV – Site Visits
	2. Integration of payment systems	Using FinTech, blockchain solutions	$TV_{Avg.} = \frac{\Sigma S}{NoT}$, $TV_{Avg.}$ = Avg. Transaction Value; S – sales; NoT – Number of transactions
	3. Sales analytics	Using AI for demand forecasting and pricing	$PM = \frac{(R - C)}{R \cdot 100\%}$, PM – Profit Margin; R – Revenue; C – Cost

Source: compiled by the authors

Thus, the use of the proposed calculation methods will allow for a systematic assessment of both marketing efficiency and operational productivity of enterprises, providing an analytical basis for making strategic decisions and optimizing business processes.

Results

Given the rapid changes in the external environment and market requirements today, digital transformation has become a real necessity for any subject of economic relations. This is not just automation of what already exists - it is a deep restructuring of organizational, technological and other processes, changes in the organization of work, building a business and ways of communicating with customers. In essence, enterprises create their own special systems of communication with everyone around them.

Scientists note that today's companies cannot be perceived as a set of unchanging working schemes. The main task of economic changes is to rethink how business works in general. These changes occur in two planes: how enterprises cooperate with each other and how people within one enterprise build working relationships with each other.

What it means to be successful in the economy is now being redefined. While previously the main thing was to achieve profitability and find the optimal size of the enterprise, in the digital age completely different things become important: the accumulation and use of knowledge within the enterprise, the ability to quickly restructure, focus on customer needs and the ability to constantly introduce something new. Digital transformation is about how enterprises change from the inside, using modern technologies and new ways of doing business to work better and more efficiently.

To achieve long-term success, it is necessary to use a development strategy. Scientists emphasize that it is the strategy that shows where to go and what level of digital development the enterprise wants to achieve. Various tools help to implement this strategy: a business model, an action plan, a set of projects that combine both technical innovations and other types of innovations.

The initial stage of changes in enterprise management usually involves: installing one program for all departments so that all units work in a single system; bringing work processes to a common standard; testing individual digital management tools on small projects to understand whether they work effectively.

Strategic development of the enterprise assumes that digital transformation touches all elements of the micro- and macro-environment: technologies, how personnel work, how management is structured, even elements of corporate culture. To achieve success, you need to think strategically, step by step implement plans through specific actions and strive to make the enterprise a more flexible and open system to the new.

The development of business processes through automation occurred gradually along with the evolution of IT technologies and included the following stages: ERP systems for enterprise resource planning appeared in 1985, then in 1990 SFA was introduced for trade automation, and in 1995 CRM was developed for working with customers and SCM for supply management. Later, in 2000, BPM appeared for business process management, and in 2005 - BI for business analytics.

The next step in digital transformation for an enterprise is to improve workflows in all departments of the organization. To accelerate innovative development, a fast, standardized, reliable and convenient system for data exchange is needed, which is especially important for quick decision-making. In the digital economy, the most important value for a business is the client, who becomes the central figure of economic activity, because without him all activity loses its meaning. The buyer chooses goods based on advice, his own experience and advertising, while the seller often cannot communicate directly with the buyer. Advertising also plays an important role, as it is formed in the online space through online advertising, Internet trends, online communities, digital hobbies, etc. Natural in the development of the digital economy and changing approaches to enterprise management is a focus on a specific consumer and the full use of information as the main resource, taking into account the individual needs of the client in a particular place, as well as the active use of

digital technologies to transform real business processes. Digital projects of an enterprise will be able to become the object of standardization and other regulation only after the accumulation of positive economic results and taking into account the specific conditions of their implementation in a particular place.

Digitalization spending is mostly reflected in research reports as overall investments in digital transformation or by industry (e.g., retail, manufacturing, finance), rather than by functional areas (marketing, logistics, commerce). Data for Ukraine, especially during the war period, is also more fragmented and focuses mainly on the reflection in the public sector (e.g., the "Diya" application). However, in Table 2 we propose to form a generalized comparative characteristic and key trends based on available analytics illustrating the level and dynamics of spending.

Table 2. Generalized comparative characteristics of digitalization costs, 2022-2024.

Indicator	World	Europe	Ukraine
Overall cost dynamics	Significant growth (CAGR 9-16% in 2024-2030 for the overall DX market). Emphasis on AI, Cloud, Cybersecurity.	Moderate but steady growth aimed at increasing competitiveness. Emphasis on regulatory compliance (e.g. eIDAS, Cloud, IoT).	Two situations: Growth in GovTech and high resilience in the IT sector. Decreased investment in some traditional sectors due to the war.
Marketing expenses (MarTech)	Highest absolute spend. Emphasis on Hyper-Personalization, GenAI (Generative AI), Customer Experience (CX), Data Analytics and Omnichannel strategies.	High costs, priority - GDPR compliance (data protection) and increasing the efficiency of Digital marketing and CRM systems.	Moderate costs compared to other regions. Focus on brand survival, online presence and basic CRM/ERP solutions.
Logistics costs (LogTech)	Rapid growth (68.9 billion USD in 2024, expected to reach 113.6 billion USD by 2030 for DX in logistics). Focus on Route Optimization, Real-time Tracking (IoT), Digital Twin, Warehouse Automation.	Significant investments, especially in warehouse automation, Fleet Management Systems (FMS) and Digital Integration Supply Chain.	Critical investments in restoring and optimizing supply chains in wartime. Emphasis on Cloud solutions, GPS tracking and basic TMS.
Commerce expenses (e- Commerce, RetailTech)	High costs driven by the growth of e- commerce. Emphasis on Omnichannel Retailing, AI recommendations, payment solutions (FinTech) and Cybersecurity.	High costs, focus on Digital Commerce platforms, Customer Journey Optimization and integration of online/ offline sales.	Moderate spending, recovery, emphasis on online sales (as a replacement for physical presence) and mobile payment solutions.

Source: generated by the authors

The global digital transformation market is growing. This growth is now not just a trend, but a challenge that forces companies of all levels to look for ways to improve efficiency in order to stay afloat in the harsh conditions of the global economy. Against this background, key tools are maturing: artificial intelligence (AI), cloud services, Internet of Things (IoT) and cybersecurity.

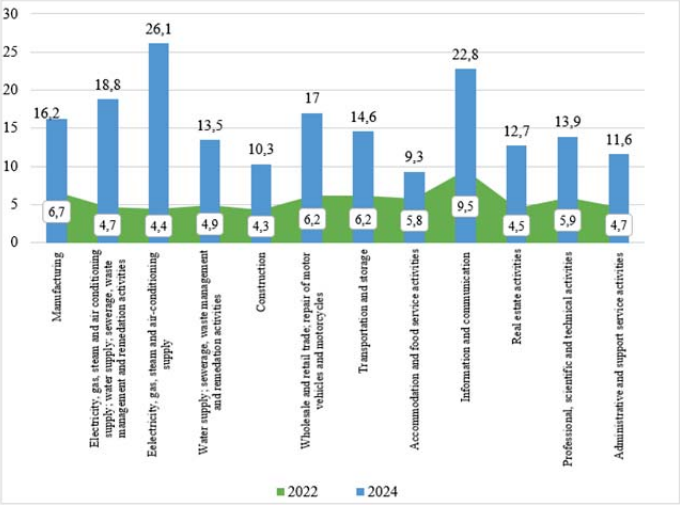
Analytical forecasts are striking in their assertion that by 2027, global spending on digitalization should reach 3.9 trillion USD. North America and the Asia-Pacific region remain the leaders in investment. The financial and manufacturing sectors absorb the most funds, while logistics and retail show the highest growth rates. Automation, data analytics, and innovation for optimization are becoming top priorities.

Considering advantages of e-commerce that were manifested in practical application in business companies, it is advisable to highlight the following characteristics:

- introduction of modern electronic payment systems as tools for quick and convenient financial transactions;

- execution of transactions based on using modern digital technologies;
- simplicity of operations and possibility to conduct audit by the provider;
- property rights and assets are in both traditional and digital form (Fig. 1).

Figure 1. Share of enterprises using ERP software of the total number of enterprises of relevant type of economic activity, %



Source: ukrstat.gov.ua

In Europe, digitalization is driven by a combination of economic and regulatory factors. The main drivers are the desire to increase productivity, ensure resilience to economic shocks, and meet European regulatory requirements (GDPR, Digital Markets Act). Considerable attention is paid to reducing technological dependence on other regions, primarily the United States.

A feature is the presence of a digital divide between Western and Eastern Europe, which reflects the difference in the level of implementation of advanced technologies and infrastructure. At the same time, in general, European companies are actively investing to reduce this gap, in particular in manufacturing automation and digital logistics. According to the European Investment Bank, more than 50% of companies in the region have increased spending on digitalization in response to the pandemic and geopolitical challenges. Europe accounts for about 26.8% of global spending on digital transformation, which indicates its strategic role in the global technological landscape (eib.org).

The Ukrainian market has a dualistic structure and a high level of reactivity. In the conditions of martial law, the main drivers were the need for business continuity, integration with the EU and the development of GovTech. The public sector is making a real breakthrough: the application "Diya" entered the top 5 in the world in terms of the pace of digitalization of public services (voxukraine.org).

Small and medium-sized businesses are lagging behind in digital transformation. They lack finance and digital literacy. Investments here are focused mainly on basic cloud services for survival. Logistics and commerce are focused on infrastructure recovery and physical data security.

If the world and Europe are focused on profitability, AI, Big Data and automation, Ukraine is focusing on resilience, continuity of government and business services, and restoration of critical infrastructure in wartime.

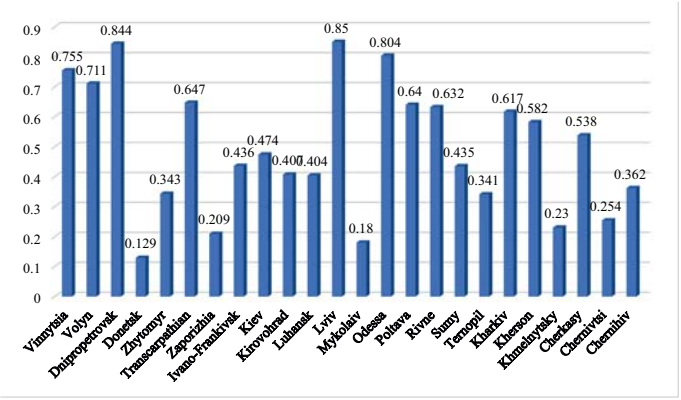
Digitalization of business and public services provides the opportunity to better preserve information, expand investment opportunities, be open in work and simplify tasks for employees. The dynamism of the market depends on demand, but the quality of the offer also plays a significant role in the development of the digital services market. Analyzing the results of the Ministry of Digital Transformation of the activities of digital divisions of regional state administrations according to the Digital Transformation Index of Regions in Ukraine, we can distinguish 3 leading regions in the field of digitalization - Lviv, Dnipropetrovsk and Odessa (Fig. 2). The Digital Transformation Index of Regions is designed to analyze the effectiveness of the implementation of digital technologies at the regional level and determine the degree of development of digital literacy among the population.

Digital transformation is unfolding in several planes at once, and each of them changes the rules of doing business in its own way.

In marketing, the main emphasis is shifting to personalization. It is no longer enough for a business to

simply have an online presence – it must work with the client as if he or she were the only one. This is where artificial intelligence comes to the fore. Generative algorithms create content in minutes, and applied algorithms segment the audience and customize communications. The result is obvious: the company receives not chaotic contacts with clients, but a holistic profile of the consumer. This allows for more accurate behavior prediction, personalized campaigns, data integration into CDPs, and increased ROI. In other words, AI is transforming from a tool into a strategic asset.

Fig. 2 Digital Transformation Index in Ukraine for 2024



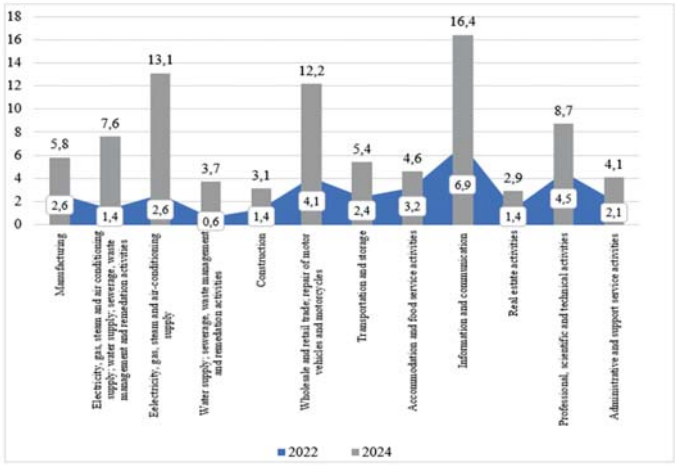
Source: compiled by the author based on Ministry of Digital Affairs

Logistics is a sector that is changing no less dynamically. Demand needs to be predicted, inventory needs to be optimized, risks need to be minimized. This is where artificial intelligence comes in. Added to this are digital twins that simulate supply chains in real time and identify weaknesses before they lead to losses. Robotic systems in hubs are speeding up and making operations cheaper, and ESG indicators are forcing companies to look beyond the surface: transparency, sustainability, and compliance are becoming integral parts of logistics strategy. In other words, logistics is no longer about "delivering cheaper," but about "ensuring business sustainability".

In e-commerce, the transformation is even more tangible. Online and offline are merging into a single space. Mobile commerce, headless architectures and digital shelf are becoming the standard that provides the same customer experience regardless of the channel. Added to this are PXM systems that maintain consistency of content and product data. At the same time, the popularity of new formats is growing in the market: live-commerce with live broadcasts, AR/VR that make shopping interactive, as well as marketplaces that lower barriers to entry. These are real tools for strengthening customer loyalty and expanding the market.

Main objects of e-commerce transactions are goods, services and information. Today, the most common systems are B2B and B2C. The B2C model is the most popular form of e-commerce and covers retail trade on the Internet (Eba.com.ua, 2023). Figure 3 presents share of the number of enterprises using CRM software of the total number of enterprises of relevant type of economic activity.

Figure 3. Share of enterprises using CRM software of the total number of enterprises of relevant economic activity, %



Source: ukrstat.gov.ua

The digitalization of the economy will be much more effective when using synergies. At the heart of digitalization is the combination of AI, automation, data management and ESG approaches. This is no longer the future, but current practices that shorten the path from idea to product, reduce costs and increase the accuracy of forecasts. Studies by Adobe and Salsify confirm: companies that have integrated omnichannel, data-driven management and transparent supply chains demonstrate a faster response to changes in demand and retain customers more strongly.

We propose to consider digital transformation in three dimensions. Let's start with marketing, where the emphasis is increasingly shifting to personalization and quality customer experience. And the main tool for this is artificial intelligence (AI). Generative and applied algorithms allow you to create content in minutes, accurately segment the audience and customize communications, which becomes a strategic advantage for business. The quality of contact with the customer is improved by integrating data from different channels – from CRM to e- commerce. This creates a single consumer profile and paves the way for more accurate recommendations (Deloitte, 2025). As a result, we have three key areas of application of AI: personalized campaigns and content, building a CDP through data integration, and behavioral analytics, which directly affects ROI.

Logistics and supply chain management are changing no less rapidly today. AI has the main tasks of forecasting demand, optimizing inventories and minimizing risks. Special attention should be paid to digital twins. They allow you to build a model of the supply chain in real time and see weak points before they affect the business. Robotic systems and mobile robots in hubs are added to this, for faster, more accurate and cheaper work. It is worth paying attention to ESG indicators. Sustainability, transparency and compliance with new requirements of partners and regulators are becoming part of the logistics strategy. To summarize, the focus is on AI forecasting and optimization, digital twins, large-scale implementation of robots and control of ESG indicators (ASCM, 2025).

Modern commerce has long been no longer limited to classic online stores. Mobile solutions and headless / decoupled architectures are coming to the fore, which add flexibility to businesses and allow them to quickly adapt digital channels. People are increasingly talking about digital shelf and product management systems (Product Experience Management, PXM). Thanks to them, the buyer gets the same experience regardless of whether he chooses a product in a physical store or on an online platform. At the same time, the format of interaction itself is changing. Live-commerce is gaining popularity, and the use of AR/VR makes the buying process interactive and more exciting. And there are also marketplaces and channel aggregators that help brands become visible and lower the barriers to entry for retailers (Big Commerce, 2025).

So, at the center of digitalization are mobile commerce, online and offline integration, headless architecture for flexible management, digital shelf and PXM for a holistic customer experience, as well as new shopping formats: live-commerce and AR/VR. Current strategic trends confirm: the main driver is the integration of artificial intelligence, customer data management systems and business process automation. These are no longer just technologies for the future, they really work, shortening the path from idea to product or marketing campaign. AI analytics and automation accelerate processes, increase the accuracy of forecasts, help save resources and reduce costs. In fact, companies are able to respond to the market faster and more confidently. Adobe research confirms this trend (Deloitte, 2025).

One of the key requirements of the modern market is becoming omnichannel. It means synchronizing the assortment, prices and content between all channels – from classic stores to online platforms. This is realized thanks to digital shelf and product information management (PIM) systems that allow you to maintain unity at customer touchpoints. Such consistency is not just convenient, but a necessary condition for competitiveness and the formation of a holistic customer experience. Those companies that have already integrated these tools receive noticeable advantages. They update content faster, respond more flexibly to demand and increase the visibility of their product portfolio. Salsify's experience confirms the effectiveness of this approach (Salsify, 2025).

But it's not just omnichannel that's shaping the new rules of the game. Transparency and sustainability in supply chains are becoming increasingly important. Investing in real-time technology visibility allow businesses not only to track the movement of goods, but also to predict risks, promptly adjust processes and avoid disruptions. The ESG factor is

worth noting separately. Compliance with sustainable development standards and reporting in this area are becoming a requirement not only of regulators, but also of customers and partners. This increases trust in the brand and makes the company more responsible in the eyes of society. As a result, enterprises that combine data management, automation, omnichannel and transparency of supply chains lay a solid foundation for long-term sustainability. This is how they gain a strategic advantage in the market, which is confirmed by ASCM analytics (ASCM, 2025).

Nova Poshta is one of the most prominent examples on the Ukrainian market, systematically investing in digital transformation and achieving tangible results in the areas of LogTech and RetailTech. Its business model is actually built on technology, and digitalization has become a key element of competitiveness. Another strength of Nova Poshta is its openness to public discussion of the results of digitalization. The company is willing to demonstrate its own achievements, emphasizing innovation and flexibility. A striking example is the launch in December 2023 of the first non-bank payment application in Ukraine, NovaPay. Just a few weeks after the launch, about 1,300 users joined it daily. As of the end of December, the application's audience exceeded 471 thousand individuals and over 30 thousand sole proprietors (NovaPay, 2025).

In the LogTech sector, the company systematically develops digital infrastructure. Projects for the construction and automation of sorting terminals are regularly covered in open sources. Applied investment areas include the use of AI and ML for automatic route calculation, the implementation of Smart-Sorting Systems with automatic weighing and scanning, as well as the use of IoT technologies for vehicle monitoring.

In the MarTech direction, Nova Poshta focuses on improving the customer experience in mobile and web environments. To personalize services, CRM systems are being implemented and trigger-based marketing communications are being automated. communication, and the UX/UI of the mobile application integrates E-Wallet services and delivery management functionality.

RetailTech segment covers the digital transformation of physical infrastructure: automation of branches and ATMs, network expansion, implementation of software-based POS, ATM management systems, and cashless payment tools (QR codes, cashless payment).

In the context of business sustainability and continuity, the company is investing in technologies to support critical processes: it is performing cloud migration of key systems, providing backup generators and Starlink connectivity in terminals and branches. This allows maintaining continuous operation of services even during large-scale power outages or in conditions of military aggression.

Analysis of Nova Poshta's activities allows us to reveal both quantitative and qualitative aspects of digital transformation. Although the exact budgets for digitalization remain a commercial secret, open sources record the volume of investments in new terminals, the number of automated facilities, and the growth of the share of digital services (for example, the percentage of shipments via post machines or a mobile application). Qualitative aspects reflect the integration of Industry 4.0 principles - robotic sorting, automated conveyors, intelligent control systems.

In turn, the context of sustainability demonstrates that digitalization performs not only the role of a driver of business growth, but also the function of a key tool for business continuity. This approach creates the possibility of assessing the ROI of digital investments in sustainability, which is especially relevant for Ukrainian businesses in conditions of high risks and uncertainty.

Table 3. Digital transformation of Nova Poshta, 2022–2024

Sphere	Transformation Tasks (2022–2024)	Modern tools	Practical metrics and measurements (based on open data)	Analytical trends and results
Marketing (MarTech) & CX	Ensuring omnichannel communication in times of crisis. Personalization of services via a mobile application.	Own CRM/CDP (Customer Data Platform), Chatbots (to automate 70% of requests), Mobile application (Super-app functionality).	Digital Order Share (DOR): > 75% of shipments created through the app. CR (Conversion Rate) in the application: High, due to minimizing input fields.	Crisis digitalization: Investments shifted from classic ROIm to Customer Retention Rate and CAC reduction by attracting loyal users to digital channels. Successful adaptation to blackouts through mobile notifications.
Logistics (LogTech)	Supply chain resilience. Automation of key hubs. Geographic expansion.	WMS (Warehouse Management System) Management System), TMS (Transport Management System), AI-sorting systems (automated conveyors), IoT /GPS- tracking.	OTIF (On-Time In-Full): High on-time performance (key loyalty factor). Terminal throughput: Increased to 40,000 parcels/hour at innovative hubs. Sorting error: Reduced to < 0.5% through automation.	Smart-Resilience: Logistics investments (LogTech) ensured business survival. Active trend – "Robotization instead of scaling" (increasing capacity without proportional growth in area). Successful digital unification for entering the EU market.
Commerce (RetailTech) & FinTech	Digitalization of points of sale. Expansion of the ATM network as a secure channel. Integration of financial services.	PRRO (Software RRO), ATM network (M2M communication), Cashless payment systems, Own E- Wallet in the application.	AOV (Average Value) / CLV: Measured indirectly through the share of additional services (insurance, packaging) and transactions in the application. Share of ATMs: Growth of the network to > 14,000 units.	Phygital dominance: ATMs and branches have become digital service hubs, where physical contact is minimized by digital tools (QR codes, self-service). Trend – FinTech integration to create an internal payments ecosystem.

Source: generated by the authors

The table shows that the digital transformation of Nova Poshta is not a series of isolated steps, but a comprehensive movement in all directions. The digitalization processes affected marketing and customer experience (MarTech & CX), logistics (LogTech), and commerce with the integration of financial services (RetailTech & FinTech).

In marketing, the main goal for 2022–2024 is omnichannel communication and personalization. The conditions were difficult, but it was then that key solutions appeared: own CRM/CDP, chatbots that close over 70% of requests, and a super-app with a built-in E- Wallet. The result? More than 75% of digital orders and high conversion in the mobile environment. At the same time, ROI indicators give way to other metrics - customer retention, reducing the cost of their acquisition, rapid adaptation to crises.

Logistics is a different story. The focus here is on resilience and speed. Modern WMS and TMS, AI sorters, IoT tracking have had a tangible effect: OTIF is at a high level, terminal throughput is up to 40 thousand shipments per hour, and sorting error is less than 0.5%. These figures confirm the main thing: the company is building "smart resilience". Investments not only automate processes, but also create a basis for entering new markets, in particular in the EU.

In commerce, the transformation looks like a large-scale transition to the phygital format. Over 14 thousand ATMs equipped with M2M communication, cashless solutions, software PPOs. And also - the integration of NovaPay directly into the application. This means not only convenience. This is a new payment ecosystem that allows you to track the average check and LTV of customers and receive additional value at the transaction stage (Table 4).

Table 4. Analysis of the dynamics of Nova Poshta's performance indicators, 2022–2024

Indicator	2022	2023	2024	Δ 2024–2022	Δ 2024–2023
Net income, USD	711 550	1 091 766	1 356 183	+644 633	+264 417
Cost price, USD	527 392	787 363	1 003 257	+ 475 865	+ 215 894
Net profit, USD	81 568	106 972	95 327	+ 13 759	- 11,645
Marketing expenses, USD	15 098	30 868	35,675	+ 20 577	+ 4,807
Marketing ROI, %	440	246	167	- 273	- 79
Inventory turnover ratio	2.0	2.0	2.0	0	0
Share of marketing expenses in revenue, %	2.1	2.83	2.63	+0.51	- 0.20
Number of shipments (million) unit)	320	412	480	+160	+68
AOV (average check), USD	2.23	2.65	2.83	+ 0.6	+ 0.18
CLV (LTV), USD	223	265	283	+ 60	+ 18
CR (Conversion Rate, %) [digital channels]	80	80	80	0	0
NPS (Net Promoter Score)	74%	77%	80.8%	+6.8%	+3.8%
Profit Margin, %	11.46	9.80	7.04	- 4.42	- 2.76
CAC (USD /customer)	0.01	0.02	0.2	+0. 1	0
Forecast Accuracy, %	98.4	98.3	97.9	- 0.5	- 0.4
Delivery Reliability, %	98.4	98.3	97.9	- 0.5	- 0.4

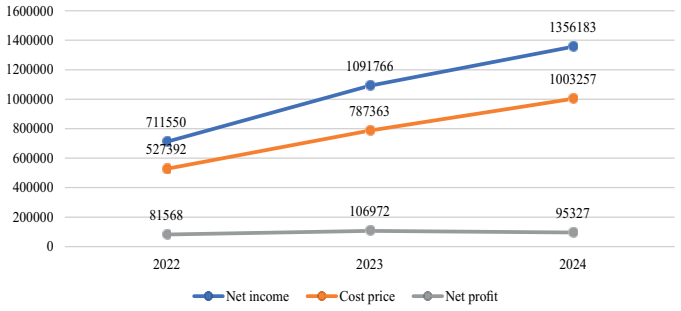
Source: calculated by the authors based on Nova Poshta (2025)

Together, these areas are combined into a single picture. Every investment in technology strengthens the business, makes it more resilient and flexible. Every digital tool is also a step towards a new standard of interaction with customers. As a result, the company does not just automate processes.

An analysis of the company's performance in 2022–2024 shows two parallel trends: the business is growing rapidly, but costs are putting pressure on profitability.

Income almost doubled – from 720 thousand USD in 2022 to 1,360 thousand USD in 2024. This is an absolute plus: the company is actively expanding the market and increasing the volume of operations. But on the other hand, the cost price has grown even faster: from 528 thousand USD up to 1,003 thousand USD. That is, there was an increase in expenses by 475 thousand USD in three years. As a result, profits initially increased from 81.5 thousand USD in 2022 to 107 thousand USD in 2023, but in 2024 it decreased to 95.3 thousand USD (Figure 4).

Fig. 4. Dynamics of economic efficiency indicators of Nova Poshta, 2022–2024, USD



Source: calculated by the authors based on Nova Poshta (2025)

Marketing expenses grew every year from 15 thousand USD up to 35.8 thousand USD. This had a positive effect, as shipments increased from 8 to 12 million USD. But the return on investment decreased. The ROI indicator decreased from 440% in 2022 to 167% in 2024. Despite this, the share of marketing expenses in revenue remained relatively stable at 2–3%. The highest peak was in 2023 (2.83%), in 2024 it was possible to reduce this indicator to 2.63%. The average check rose from 2.23 to 2.83 USD. Customer lifetime value (CLV) – from 2 23 to 2 83 USD.

Loyalty has also increased: NPS from 74% to almost 81%. Conversion from digital channels remains consistently high at 80%.

In logistics, the situation is somewhat different. Inventory turnover did not change (2.0), and forecasting accuracy and delivery reliability slightly worsened their values from 98.4% to 97.9%. This is a signal that scaling increases risks and loads on the system. That is, the company is growing rapidly, customers are becoming more valuable, but margins are falling. The next step is to optimize costs, invest in effective marketing tools, and stabilize logistics. Only then will growth become not only large-scale, but also sustainable.

Conclusions

Thus, digital transformation for an enterprise is a complex process that involves changing strategies, ways of doing business, production processes and corporate culture in order to adapt to new market realities and needs. Digital transformation covers the field of marketing, logistics and trade. This changes approaches to doing business. Marketing is focused on multi-channel and an individual approach through mobile applications. Logistics centers improve the efficiency of their activities through automation and are able to process more orders. Trade is switching to a phygital format and is actively using digital financial technologies. The global digitalization market is developing extremely rapidly. Before the war, Ukraine was actively implementing digital solutions in all industries. The digital transformation of business during military operations in Ukraine brought both difficulties and new opportunities. Making full use of digital technologies, aligning investment strategies with global trends, and leveraging digital transformation as an engine of economic development will be critical for Ukraine's sustainable growth and resilience in today's challenging environment. As Ukraine navigates the challenges of war, it is crucial to maximize the potential of digital business transformation to rebuild the economy after the war. Digital technologies play a central role in this process.

Research by Nova Poshta has shown that in the Ukrainian market, large companies that want to be leaders and maintain a significant market share are actively implementing digital solutions in marketing, logistics and trade, which leads to increased revenues and an expanded customer base. Therefore, investments in digital technologies and automation directly affect the stability of the business, the quality of work with customers and the consolidation of financial transactions. As a result, new standards of operational productivity and customer service are being formed.

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