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Evolution of Electronic Trade in the Global Financial Environment

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ABSTRACT

This article examines the evolution of electronic commerce (e-commerce) within the global financial environment, with a particular focus on its impact on economic and financial processes, both globally and in Ukraine. The purpose of this research is to analyze the evolutionary trajectory of e-commerce and systematically evaluate its multidimensional impact on financial systems, the development of payment infrastructure, and economic integration processes. The study identifies seven distinct evolutionary stages of global e-commerce development, from technological prerequisites (1970s–1980s) through current financial services transformation (2020s). Statistical analysis reveals that e-commerce has become a primary driver of financial innovation: the share of cashless payments in Ukraine reached 64.5% of total transaction value by 2024, while global adoption of digital payment solutions expanded from 35% in 2014 to 57% in 2021 in developing countries. The research demonstrates that e-commerce stimulates cross-border digital trade, with developing countries exporting over USD 1 trillion in digitized services through online channels in 2022. In Ukraine specifically, despite experiencing a 92% revenue collapse during the initial invasion period, the e-commerce sector demonstrated remarkable resilience, recovering to USD 4 billion by 2024 and maintaining 8.8% of retail turnover share. The analysis reveals a strong correlation between e-commerce growth and fintech development, mobile banking expansion, and central bank digital currency (CBDC) adoption initiatives. E-commerce functions as a catalyst for comprehensive financial system transformation, creating conditions for enhanced financial inclusion, payment infrastructure modernization, and monetary policy innovation. The study confirms that e-commerce integration parallels financial system restructuring through accelerated cashless payment adoption, increased investment flows into fintech sectors, and expanded digital financial services accessibility. For Ukraine, e-commerce represents not merely a new market segment but a strategic instrument for post-war economic recovery, competitiveness enhancement, and integration into global financial ecosystems, demonstrating the sector's systemic importance beyond traditional retail boundaries.

KEYWORDS

marketplace, e-commerce, digital economy, financial system, financial services, digital payments, fintech, cashless transactions, financial inclusion, payment infrastructure.

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Еволюція електронної торгівлі в глобальному фінансовому середовищі

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СТАТТЯ

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АНОТАЦІЯ

Стаття присвячена дослідженню еволюції електронної торгівлі (e-commerce) у глобальному фінансовому середовищі та в Україні, з акцентом на її вплив на економічні та фінансові процеси. Метою цього дослідження є аналіз еволюційної траєкторії е-комерції та систематична оцінка її багатовимірного впливу на фінансові системи, розвиток платіжної інфраструктури та процеси економічної інтеграції. Дослідження визначає сім окремих етапів еволюції глобального розвитку е-комерції, починаючи з технологічних передумов (1970–1980-ті роки) і закінчуючи сучасною трансформацією фінансових послуг (2020-ті роки). Статистичний аналіз показує, що е-комерція стала основним двигуном фінансових інновацій: частка безготівкових платежів в Україні досягла 64,5 % від загальної вартості транзакцій до 2024 року, тоді як глобальне впровадження цифрових платіжних рішень зросло з 35 % у 2014 році до 57 % у 2021 році в країнах, що розвиваються. Дослідження демонструє, що е-комерція стимулює трансакції через цифрову торгівлю між країнами, при цьому країни, що розвиваються, експортували понад 1 трильйон доларів США в оцифрованих послугах через онлайн-канали у 2022 році. В Україні, незважаючи на 92% падіння доходів під час початкового періоду вторгнення, сектор е-комерції продемонстрував вражаючу стійкість, відновившись до 4 мільярдів доларів США до 2024 року та зберігши 8,8 % частки роздрібного обороту. Аналіз виявляє сильну кореляцію між зростанням е-комерції та розвитком фінансових технологій, розширенням мобільного банкінгу та ініціативами з впровадження цифрових валют центрального банку (CBDC). Е-комерція функціонує як каталізатор комплексної трансформації фінансової системи, створюючи умови для підвищення фінансової інклюзії, модернізації платіжної інфраструктури та інновацій у грошово-кредитній політиці. Дослідження підтверджує, що інтеграція е-комерції паралельна реструктуризації фінансової системи через прискорене впровадження безготівкових платежів, збільшення інвестиційних потоків у фінансові технології та розширення доступності цифрових фінансових послуг. Для України е-комерція представляє не лише новий сегмент ринку, але й стратегічний інструмент для відновлення економіки після війни, підвищення конкурентоспроможності та інтеграції в глобальні фінансові екосистеми, демонструючи системну важливість сектора за межами традиційних роздрібних кордонів.

КЛЮЧОВІ СЛОВА

маркетплейс, електронна комерція, цифрова економіка, фінансова система, фінансові послуги, цифрові платежі, фінансові технології, безготівкові транзакції, фінансова інклюзія, платіжна інфраструктура.

1. Introduction

Over the past three decades, e-commerce has evolved from the first online transactions in the 1990s into a multi-trillion-dollar sector of the global economy. According to UNCTAD, in 2022, the total value of e-commerce (B2B and B2C) reached about USD 27 trillion, accounting for nearly one-third of global GDP. The share of online sales in global retail rose from ≈8% in 2015 to over 19% in 2020, while the number of digital buyers worldwide exceeded 2.3 billion people [12].

For Ukraine, e-commerce is a relatively new phenomenon, but it has demonstrated rapid growth: between 2016 and 2020, the market tripled, reaching USD 4 billion (8.8% of retail turnover). Despite the war-related shocks, in 2024 the online retail market again surpassed its pre-war level.

The relevance of this study lies in the fact that e-commerce not only transforms consumption patterns but also strongly influences the financial environment. It stimulates the development of cashless payments (in 2024, their share in Ukraine reached 64.5% of total transactions by value), promotes financial inclusion, and shapes new channels of capital flow [12].

The purpose of the article is to analyze the evolution of e-commerce and its impact on the financial system. The main objectives are to identify key stages of its development, to evaluate its role in shaping modern payment infrastructure and fiscal revenues, and to determine the challenges and prospects of the Ukrainian market within the context of global integration.

This study hypothesizes that e-commerce is a major driver of financial transformation, enhancing financial inclusion, investments, and economic resilience. In Ukraine, it has the potential to become a key factor of integration into the global economy, provided that existing structural and institutional barriers are overcome.

2. Literature Review

The study of the evolution of e-commerce requires reliance on academic works, statistical data, and analytical reports from international organizations.

The UNCTAD Digital Economy Report 2024 summarizes global trends in digital trade and presents statistics on the growth of e-commerce worldwide, including data showing that the sector reached USD 27 trillion in 2022. This report highlights the uneven development of the digital economy across countries and outlines regulatory challenges, but also emphasizes the strong financial dimension: e-commerce already accounts for about 30% of global GDP, directly influencing capital flows, tax systems, and cross-border payment structures.

The World Bank's Global Findex Database 2021 provides evidence of the role of digital payments and mobile banking in financial inclusion: in developing countries, the share of adults using digital payments grew from 35% in 2014 to 57% in 2021 [4]. This expansion of digital finance is directly linked to e-commerce adoption, as online platforms have stimulated demand for secure and accessible payment solutions. In addition, the report notes that digital finance reduces transaction costs and expands access to credit, thereby strengthening household participation in the formal economy.

Theoretical foundations for understanding the marketing and managerial aspects of e-commerce are provided by Philip Kotler and Kevin Keller in Marketing Management, where e-commerce is seen not only as a sales channel but also as a mechanism that reshapes consumer trust in financial transactions. Similarly, the work of Efraim Turban et al. in Electronic Commerce [11]: Contemporary Management and Applications systematizes e-commerce management models and describes the early stages of online trade, allowing the historical evolution of the phenomenon to be traced and demonstrating how new financial instruments (from online payments to digital wallets) emerged alongside the expansion of trade [8].

Particularly relevant are the issues concerning the impact of digital technologies on the development of trade and the transformation of business processes within enterprises. An analysis of scientific publications allows for the identification of key research directions in this field.

Zhukovska V. and Klymansky V. [14] investigate the transformation of business processes in e-commerce enterprises under the influence of digital technologies. The authors emphasize the necessity of refining the classification of business process management, taking into account social and environmental responsibility, as well as the integration of artificial intelligence. The researchers systematized the classification features of business process management in retail e-commerce enterprises based on criteria such as the level of automation, functionality, product life cycle stage, and customer interaction level.

The study of the impact of innovative technologies on trade development is presented in a work that analyzes trends in physical trade and statistics on the development of electronic, retail, and wholesale trade. Shevchenko K. and Sager L. [10] examine specific examples of trade and technological innovations and their impact on retail trade, identifying the advantages and risks associated with their use for both consumers and trading enterprises.

International aspects of digital trade development are considered through the lens of financial and innovative components. The research demonstrates the interconnection between financial and innovative elements in the development of digital trade in global markets, revealing a system for risk formation. Fedirko O. [6] emphasizes that digital technologies are the foundation of financial services, and their interaction with innovations occurs through the development of cloud services, artificial intelligence, blockchain technologies, and so forth. The implementation and utilization of financial services through innovations and digital technologies significantly enhance the quality of service in digital commerce on global markets.

Researchers identify economic, social, and infrastructural risks in the context of global market development. The symbiosis of global market risks and the development of digital trade leads to the emergence of new types of risks: socio-economic, socio-infrastructural, and infrastructural-economic.

Hnydyuk I. and Skladanyuk M. [7] investigate the development of digital technologies in the financial services market of Ukraine under conditions of martial law. The authors define the essence of digitalization and the advantages of its promotion in the financial services market, summarizing the most significant innovations for implementation in the operations of financial institutions.

In the national context, a fundamental document is the Law of Ukraine “On Electronic Commerce” (2015), which standardized the concept of electronic transactions and established the legal basis for online trade. Importantly, this law also provided recognition of electronic payments as equal to traditional ones, strengthening the integration of Ukraine’s financial system into the European regulatory space.

The Ukrainian E-Commerce Market Report 2021 (Soul Partners) provides a detailed analysis of the national market: in 2020, it reached USD 4 billion (8.8% of retail turnover), while average annual online spending per Ukrainian consumer was approximately USD 104. The report stresses that the sharp growth of the sector has been accompanied by a rise in non-cash payments, greater use of mobile banking, and the development of local fintech solutions, which altogether contribute to the modernization of the Ukrainian financial system.

Additional studies from OECD (2021) and PwC Global Fintech Report (2023) emphasize that e-commerce has become a driver of innovation in the financial sector: from the mass adoption of contactless payments during the COVID-19 pandemic to the acceleration of central bank digital currency (CBDC) projects. These findings confirm that e-commerce influences not only retail trade but also monetary policy instruments and the structure of financial markets [2].

The reviewed literature and reports show that e-commerce is a multidimensional phenomenon that affects both the global economy in general and the financial sector in particular. However, despite numerous studies, there remain research gaps – especially concerning the role of e-commerce in macro-financial stability, long-term capital flows, and within the specific conditions of developing economies, including Ukraine. These gaps justify the choice of the present study’s topic and its focus on the financial aspects of e-commerce evolution.

3. Problem Statement

The problem addressed in this article lies in the fact that, despite the rapid growth of e-commerce as a key driver of the global economy, its financial implications – particularly its impact on payment infrastructure, investment flows, and the integration of national economies, including Ukraine, into the global financial environment – remain insufficiently studied.

4. Methods and Materials

The authors of this article apply a systematic and comprehensive approach, using statistical and comparative analysis to conduct an in-depth empirical study of the impact of e-commerce on the financial environment. The research is carried out in several stages.

The first stage focuses on the historical analysis of e-commerce development. It examines the evolution of electronic trade worldwide from the first online transactions in the 1990s to its current state. For this purpose, data from international organizations (UNCTAD, OECD, WTO) and academic works (Turban et al.; Kotler & Keller) are used to trace patterns of evolution and identify the main drivers of growth.

The second stage centers on macro-financial indicators. The analysis covers global e-commerce volumes (B2B and B2C), their share of GDP, the dynamics of online retail penetration, and their impact on financial inclusion. Statistical data from UNCTAD, the World Bank (Global Findex Database), as well as central banks and national statistical agencies are employed. Dynamic series are constructed and growth rates calculated to reveal global patterns.

The third stage is dedicated to the Ukrainian e-commerce market. The study examines the market's volume and structure from 2016 to 2024, its share of total retail turnover, average consumer spending online, and the role of marketplaces. Sources include the Ukrainian E-Commerce Market Report 2021 (Soul Partners), the State Statistics Service of Ukraine, and the National Bank of Ukraine (e.g., data showing that the share of cashless transactions reached 64.5% of total transaction value in 2024). Special attention is paid to exogenous shocks such as the COVID-19 pandemic and the war in 2022, which significantly affected market dynamics.

The fourth stage addresses the financial implications of e-commerce, analyzing how it influences:

a) the development of payment infrastructure (growth of mobile and online payments),
b) investment attractiveness of the sector,
c) fiscal revenues and regulatory challenges (VAT, customs regimes),
d) financial inclusion and SME access to international markets.

Through this systematic approach, the study provides a comprehensive examination of the multifaceted relationship between the evolution of e-commerce and the financial environment, both in the global context and in the case of Ukraine.

5. Results and Discussion

E-commerce is a sector of the economy that encompasses the buying and selling of goods and services through electronic networks, primarily the Internet. Since its emergence in the 1990s, it has transformed from a niche channel into one of the key segments of the global economy. Today, there are billions of Internet users worldwide, and an increasing share of them are shopping online. For example, in 2021 around 2.3 billion people made online purchases, which is 68% more than in 2017. The total volume of global electronic sales (including B2C and B2B) reached about USD 27 trillion in 2022, a 10% increase compared to 2021. This accounts for a significant share of global GDP and reflects the substantial impact of e-commerce on the global financial environment. This article highlights the evolution of e-commerce from its origins to the present, both in the global context and in Ukraine, providing comparative analysis, key statistical indicators, as well as graphical and tabular materials to illustrate the trends.

The origins of e-commerce. The first attempts to conduct commercial operations through computer networks date back to the 1970s (for example, transactions via the ARPANET network). However, the beginning of modern e-commerce is considered the mid-1990s. A historic milestone was the first secure online purchase in August 1994, when a Sting CD was sold for USD 12.48 through the NetMarket website using encryption to transmit credit card data [12]. In 1995, pioneers of Internet retail such as Amazon and eBay were founded, marking the start of the era of online shops. This period was characterized by the dot-com boom: thousands of new online companies emerged in the late 1990s seeking to capture the new electronic market. Despite the collapse of many dot-coms in 2000, e-commerce survived the crisis: the most successful companies consolidated their positions and continued to grow in the 2000s.

The role of legal frameworks. International initiatives and regulatory frameworks played an important role in shaping the e-commerce environment. The World Trade Organization (WTO) [4], as early as September 1998, adopted the Work Programme on Electronic Commerce to study the trade aspects of global e-commerce. In many countries, the first laws regulating electronic transactions were introduced (for example, in the EU, the E-Commerce Directive 2000/31/EC was adopted in 2000). In Ukraine, the development of the legal framework took place later: the special Law of Ukraine "On Electronic Commerce" came into force only in 2015, establishing definitions for online trade and the rules for electronic transactions [13]. This law harmonized Ukrainian regulation with EU standards and became an important milestone in the development of domestic e-commerce.

Since the early 2000s, the volume of online sales worldwide has steadily increased under the influence of broadband Internet expansion, the development of payment systems (for example, PayPal launched in 1998), and rising consumer trust in online purchases. In the 2010s, this trend accelerated with the spread of smartphones and mobile Internet: the notion of m-commerce (mobile commerce) emerged, where a significant share of transactions is carried out through mobile applications. The geography of e-commerce also expanded: while the United States initially dominated, China later became the leader. Today, the United States and China together generate over 40% of global e-commerce volumes, with the Chinese B2C market being the largest in the world. Other countries in Asia, Europe, and Latin America have also demonstrated rapid growth, making e-commerce a truly global phenomenon.

The COVID-19 pandemic in 2020 became a powerful catalyst for the shift to online shopping. Lockdowns and restrictions dramatically increased demand for remote purchases. As a result, the share of online sales in global retail rose from ~16% in 2019 to 19% in 2020. For example, in South Korea, the share of online retail reached 25.9% in 2020 compared to 20.8% the year before. Similar trends were observed in many countries: in the UK, online sales accounted for 23.3% of retail turnover (vs. ~15% before the pandemic), and in the US – 14% (vs. 11% the year before). Overall, the volume of e-commerce (B2C + B2B) had already reached USD 26.7 trillion by 2019, equivalent to ~30% of global GDP. This highlights how deeply e-commerce has become integrated into the global economy [9].

According to statistical estimates, if in 2014 the global volume of online goods sales was about USD 1.3 trillion, by 2021 it exceeded USD 4.9 trillion, and by 2023 it approached USD 6.5 trillion. Thus, in less than a decade, the market grew fivefold. Growth rates were especially strong during 2020–2021, when many consumers shifted to online channels due to pandemic restrictions. Although growth slowed somewhat in 2022–2023, absolute figures continued to set records. Experts forecast that this positive trend will continue: by some estimates, by 2040, up to 95% of all purchases worldwide will be made online [10], which may fundamentally transform the global trading system.

One of the distinctive features of e-commerce evolution is the outpacing growth of certain regions, enabling them to catch up with global leaders. In particular, Eastern European countries demonstrated higher growth rates in B2C e-commerce than many Western European markets. Ukraine belongs to this group: although e-commerce started later here, it is now developing very dynamically, approaching the average European level of market penetration.

The rapid growth of e-commerce has had a significant impact on the global financial and economic environment. First, e-commerce has become a driver of international trade. Online platforms have lowered barriers for companies to enter foreign markets: even small and medium-sized enterprises have gained the opportunity to sell abroad through marketplaces and their own websites. This has fueled the expansion of cross-border e-commerce and digital trade in services. According to UNCTAD, in 2022, developing countries for the first time exported over USD 1 trillion worth of "digitized" services (IT, telecommunications, financial services, etc.), largely through online channels. Thus, e-commerce has become integrated not only into retail trade but also into the services and knowledge sectors, creating new models of the global economy [4].

Secondly, e-commerce has stimulated the development of payment infrastructure and fintech. The demand for fast and secure electronic payments has led to the improvement of payment systems, the emergence of new services (such as Apple Pay, Google Pay, etc.), and the rise of digital currencies. In developing countries, mobile payments help to provide access to financial services for previously unbanked populations. According to World Bank estimates, the use of mobile banking could significantly reduce the number of people without bank accounts worldwide (as of 2021, there were still 1.4 billion such individuals). Thus, e-commerce contributes to financial inclusion, bringing new consumers and entrepreneurs into the global market.

Thirdly, the globalization of e-commerce has created new regulatory challenges for the international community. The need to simplify customs procedures, harmonize tax rules for online sales, and protect consumer rights and data in cross-border transactions has prompted cooperation at the level of international organizations. Within the WTO, negotiations are ongoing on an agreement on e-commerce (the so-called Joint Statement Initiative on E-Commerce, launched in 2017 with the participation of 71 countries, including Ukraine). The purpose of these negotiations is to establish transparent and favorable conditions for global digital trade. In parallel, the OECD and the World Bank have been studying the impact of e-commerce on development and formulating policy recommendations (e.g., digital services taxation, logistics standards, support for SMEs in online trade). UNCTAD also plays a key role, with programs helping developing countries to measure and expand their digital economies. In particular, UNCTAD has published the B2C E-Commerce Index, which ranks countries by readiness for online trade (Ukraine held a mid-range position but with a positive upward trend).

Finally, e-commerce has become an integral part of the global financial environment, attracting the attention of investors and capital markets. The largest e-commerce companies (Amazon, Alibaba, Shopify, etc.) are now among the most valuable corporations in the world, with their stocks forming an important component of major indices. The pandemic led to a sharp rise in the capitalization of online retailers: for example, the GMV (gross merchandise volume) of the 13 largest global e-commerce companies in 2020 increased by 20.5%, surpassing USD 2.9 trillion [13]. This indicates that investors recognize the long-term potential of e-commerce and are channeling significant capital into its development. Thus, e-commerce affects not only the retail sector but also financial flows, investment priorities, and the structure of global capital markets.

All of the above allow us, by applying combined criteria, to identify the main stages of the emergence, development, and evolution of e-commerce (Table 1).

Table 1. Evolution of E-commerce in the Global Financial Environment

Stage of Development	Characteristics	Impact on the Global Economy and Financial Environment	Impact on the Financial System
1970s–1980s (preconditions)	First transactions through computer networks	Formation of the technological	Early experiments with electronic data exchange; minimal impact on financial institutions
1990s (emergence)	Beginning of modern e-commerce	Creation of online stores, start of the dot-com boom, and increasing role of e-commerce in GDP	First use of online card payments; emergence of transaction security standards (SSL, encryption)
2000s (consolidation)	Spread of broadband Internet and payment systems	Rising consumer trust; transition of e-commerce into a stable segment of the global economy	Expansion of PayPal, Visa, MasterCard online; growth of cross-border digital payments
2010s (mass expansion)	The rapid growth of online sales due to smartphones	U.S. and China account for >40% of global e-commerce; strong growth in Asia and Europe	Development of mobile banking and e-wallets; rise of global fintech players; expansion of digital payment ecosystems
2020–2021 (COVID-19 catalyst)	Sharp increase in online purchases during lockdowns	E-commerce becomes a central retail channel; rising contribution to global GDP	Surge in digital and contactless transactions; widespread use of Apple Pay, Google Pay
2022–2023 (post-pandemic development)	Stabilization and further growth	E-commerce ≈ 30% of global GDP; deeper integration into international trade in goods and services [3]	Fintech integrated into banking; rapid growth of venture capital in payment innovations
2020s (financial services transformation)	Expansion of fintech solutions, digital wallets, and mobile banking under the influence of e-commerce	Global rise in financial inclusion; integration of e-commerce into all sectors of the economy	Central banks testing and adopting CBDCs; structural changes in monetary policy

Source: Systematized by the authors based on data provided in [1].

For Ukraine, e-commerce is a relatively new phenomenon: it began to penetrate the mass segment later than in developed countries. The first online stores appeared in the 2000s, but the real boom came in the 2010s, when Internet penetration increased and local online marketplaces emerged. A milestone was the adoption of the Law of Ukraine "On Electronic Commerce" (2015), which regulated electronic transactions and brought national legislation closer to European standards [13]. Since then, the sector has grown at an accelerated pace.

Between 2016 and 2020, the volume of Ukrainian e-commerce tripled. Growth was particularly sharp in the pandemic year 2020, when online trade jumped by +41% year-on-year. According to a study conducted by the consulting company Soul Partners with the support of USAID, the size of the e-commerce market in Ukraine reached USD 4 billion in 2020, accounting for 8.8% of the country's retail turnover. For comparison, five years earlier, the share of online trade was only about 1% of the retail market. The contribution of e-commerce to Ukraine's GDP in 2020 was estimated at 2.6%. Although this is significantly lower than in leading countries (for example, in China and the U.S. total e-commerce accounts for several dozen percent of GDP), the progress is evident. Average annual online spending by a Ukrainian consumer in 2020 was around USD 104 – far less than in developed markets (for example, in the Czech Republic, this figure reaches USD 800) [5]. This is explained by relatively lower purchasing power and still limited trust in online payments, but the trend remains positive.

Growth continued in 2021, as evidenced by the increasing share of online shoppers. While in 2017 only about 22% of Ukrainians (aged 15+) bought something online, by 2021–2022 this share had risen to 42% of the population. This is higher than in other Eastern Partnership countries and is approaching EU averages (about two-thirds of the adult population). The main drivers of growth were young people actively using smartphones, the development of delivery services, and payment platforms. According to studies, 63% of all online orders by Ukrainians are placed through marketplaces (universal platforms), with the rest via specialized online shops. The largest players in the Ukrainian market include marketplaces such as Rozetka, Prom.ua, Allo, Bigl, Epicentr, and others. Initially, sales were dominated by electronics and clothing, but in recent years the share of other categories – home goods, cosmetics, groceries – has grown rapidly. For example, online clothing sales in 2020 amounted to USD 291 million (6.8% of the entire clothing market), with a projected share of 10% by 2023. In the furniture segment, online sales reached USD 69 million, already 9.2% of total retail furniture sales. These figures confirm the trend: more and more categories are moving into the online space.

The COVID-19 pandemic affected Ukrainian e-commerce in the same way as globally: 2020 was a record year in terms of growth rates. However, for Ukraine, a powerful challenge also came with the full-scale Russian–Ukrainian war, which began in February 2022. In the very first month of the war, e-commerce suffered a shock: due to hostilities, disrupted logistics, and mass displacement of the population, sales collapsed. According to Promodo agency estimates, in the first week of the invasion, online store revenues fell by 92% compared to pre-war levels. Many businesses suspended online operations due to threats to employees and infrastructure, while consumers focused on spending on essential goods offline. However, after the initial shock, the market demonstrated significant resilience and adaptability. By the second half of 2022, part of online sales had recovered, businesses restructured delivery chains (increasing the role of postal operators and local warehouses), and many companies accelerated digital transformation to survive. Consumers also adapted: the share of cashless prepayments grew even in domestic shipments (by 2023, about 15% of orders were prepaid by card, compared to ~8% in 2020). Demand shifted towards everyday goods, groceries, and hygiene products – categories that had been underrepresented online before. Despite the wartime difficulties, Ukrainian online retail demonstrated the ability not only to survive but also to gradually recover. According to the EVO Group, in 2024, the volume of online transactions again amounted to about USD 4 billion (one-third higher than in 2023), thus returning to the 2020 level. This indicates that e-commerce has become an integral part of Ukraine's trade infrastructure and has sufficient resilience even in the face of extraordinary circumstances.

Despite the difference in economic scale, the development of e-commerce in Ukraine generally reflects global trends, though with a lag of several years. For clarity, Table 2 presents a comparison of key e-commerce indicators in the world and in Ukraine [5].

Although the scales of the global and Ukrainian markets differ significantly, the dynamics of e-commerce development in Ukraine generally mirror global trends, albeit with a certain time lag. As shown in Table 2, in 2020, the share of e-commerce in global retail trade reached about 19%, while in

Ukraine it was 8.8%. At the same time, the growth rates of the domestic market were even higher (+41% compared to +22% worldwide), which indicates its dynamic nature. In terms of online shoppers, Ukraine's share (42% of the 15+ population in 2021) also demonstrates a gradual convergence toward global levels (2.3 billion users, or about 29% of the world's population).

Table 2. Typology of institutional models for the digitalization of the financial system

Indicator	World	Ukraine
Online sales volume, 2020 (B2C retail)	≈ USD 2.5 trillion	USD 4 billion
Growth vs. 2019	+22% (estimate)	+41%
Share of online trade in retail, 2020	~19%	8.8%
Share of population shopping online (2021)	2.3 billion people (~29% of the global population)	42% of the population aged 15+

Source: Systematized by the authors based on data provided in [5].

Although the scales of the global and Ukrainian markets differ significantly, the dynamics of e-commerce development in Ukraine generally mirror global trends, albeit with a certain time lag. As shown in Table 2, in 2020 the share of e-commerce in global retail trade reached about 19%, while in Ukraine it was 8.8%. At the same time, the growth rates of the domestic market were even higher (+41% compared to +22% worldwide), which indicates its dynamic nature. In terms of online shoppers, Ukraine's share (42% of the 15+ population in 2021) also demonstrates a gradual convergence toward global levels (2.3 billion users, or about 29% of the world's population).

As the table indicates, the market scales are incomparable (global online trade measured in trillions of dollars vs. billions in Ukraine), but relative growth and penetration rates in Ukraine are approaching global averages. The share of e-commerce in Ukraine's retail trade (≈9% in 2020) still lags behind the global average (≈19%), but the gap is gradually narrowing. Forecasts suggest that in the coming years, this figure in Ukraine will exceed 10% and continue to grow, especially with economic recovery after the war. The Ukrainian market is characterized by higher growth rates – +41% in 2019–2020, almost twice the global average (~20–22% growth in 2020, driven by the pandemic). This demonstrates significant catch-up potential: once the prerequisites (household income, infrastructure) improve, consumers quickly switch to online channels.

A noticeable difference is observed in per capita spending. As noted, the average Ukrainian spends only about USD 100 annually online, far less than in Western countries. This is linked to income levels as well as psychological barriers (many still prefer physical stores or cash-on-delivery). However, as Internet penetration grows and trust in online services strengthens, the situation is improving. Already, household expenditure on online purchases in Ukraine accounts for 4.72%, which is comparable to the Visegrad Four average (around 4–5%) and even higher than in Poland (3.8%) or Slovakia (2.5%). This suggests that Ukrainian consumers are gradually adopting European patterns of behavior, spending an increasing share of their budget online.

Regarding market structure, both globally and in Ukraine, there is strong concentration around large platforms. Globally, retail e-commerce is dominated by Amazon, Alibaba, and other giants that capture the lion's share of online revenues. In Ukraine, a group of dominant players has also formed (Rozetka and other marketplaces), attracting the majority of consumers. At the same time, the Ukrainian market is more fragmented: in addition to the leaders, hundreds of small and medium-sized online shops, often with narrow specialization, remain active. Many of them emerged as an entrepreneurial response to new opportunities – for example, during the 2020 lockdowns, numerous traditional stores went online for the first time, and during the 2022 war many businesses were forced to sell online due to the closure of physical outlets. This process increased the overall digital competence of the business sector. However, it should be noted that the share of SMEs selling online remains limited – only 4.2% of small Ukrainian firms conduct e-sales, compared to 10.5% among large companies. Thus, while large enterprises actively use e-commerce, small and medium businesses require additional support for broader integration into digital trade.

Summarizing the above and applying combined criteria, the main stages of e-commerce development in Ukraine can be identified (Table 3).

Table 3. Evolution of E-commerce in Ukraine

Period	Characteristics	Impact on the Economy of Ukraine	Impact on the Financial Environment of Ukraine
2000–2010 (beginning)	Emergence of the first online stores	Online sales remain a niche segment (<1% of retail trade)	Minimal impact on the financial system; payments are mostly in cash or cash-on-delivery
2010–2015 (market formation)	Growth driven by mobile Internet and delivery services	Online trade reaches ~3% of the retail market	Initial use of electronic payments, the emergence of local payment services, and growing trust in card transactions
2015 (legal regulation)	Adoption of the *Law of Ukraine "On Electronic Commerce"*	Basic conditions for e-commerce development and consumer protection were established	A legal framework for electronic transactions was created, stimulating the banking sector's digitalization
2016–2020 (dynamic growth)	Threefold increase in market volume	E-commerce becomes one of the drivers of the digital economy	Rapid growth of cashless operations; development of payment systems and integration with mobile services
2020–2021 (COVID-19 catalyst)	Sharp increase in online purchases due to lockdowns	Acceleration of digitalization; integration of online channels into the everyday economy	Surge in online payments, widespread adoption of Apple Pay and Google Pay, and expansion of financial inclusion
2022 (war shock)	Sharp decline due to Russia's invasion	The sector suffers a major blow but partially recovers in the second half of the year	Temporary decline in payment activity, but growing share of cashless transactions; financial services adapt to wartime conditions
Period	Characteristics	Impact on the Economy of Ukraine	Impact on the Financial Environment of Ukraine
2023–2024 (recovery)	Market adapts to wartime conditions	By 2024, the market recovered to USD 4 billion; e-commerce has integrated as a resilient component of the economy	Increasing share of cashless payments (>60% of all transactions), fintech expansion, groundwork for central bank digital currency (CBDC) projects

Source: Systematized by the authors.

E-commerce in Ukraine, although lagging somewhat behind developed countries, has become a catalyst for financial transformation. It has accelerated the transition to a cashless economy, stimulated the development of fintech, promoted financial inclusion, and created the conditions for the introduction of innovative instruments at the level of state monetary policy (in particular, CBDCs). Thus, e-commerce influences not only the retail sector but also the structure and resilience of Ukraine's financial environment.

6. Conclusions

The conducted study has shown that e-commerce is not only a trading tool but also a powerful factor in the transformation of the financial environment. The analysis of statistical data and international reports made it possible to establish that the integration of e-commerce into the global economy occurs in parallel with the restructuring of financial systems: the spread of cashless payments, the growth of financial inclusion, the intensification of investment flows into fintech, and the expansion of digital infrastructure.

At the global level, the development of e-commerce contributes to the redistribution of capital, the formation of new models of international trade, and an increasing role of digital services in macro-financial stability. This confirms the strategic importance of e-commerce not only for the consumer sector but also for financial markets and monetary policy.

In Ukraine, the evolution of e-commerce has demonstrated a close connection with the modernization of financial infrastructure: a sharp increase in the share of non-cash transactions, the expansion of mobile banking services, and rising consumer trust in online payments. Despite crisis phenomena – the pandemic and the war – the Ukrainian market has managed to adapt, which testifies to the resilience of the financial system and its capacity for digital transformation.

An important finding of the study is that e-commerce acts as a catalyst for innovation in the financial sector, creating conditions for the introduction of new payment instruments and even for experiments with central bank digital currencies (CBDCs). This means that the development of e-commerce has a long-term impact not only on consumer and business behavior but also on the very architecture of the financial environment.

Thus, e-commerce has become a system-forming element of the modern financial ecosystem. For Ukraine, it is not just a new market but an instrument for enhancing competitiveness, integrating into the global financial environment, and building a resilient post-war economy.

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