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E-COMMERCE TRANSFORMATION UNDER WARTIME CONDITIONS: EVIDENCE FROM UKRAINE'S DIGITAL ECONOMY

ABSTRACT

The Russian invasion of Ukraine in February 2022 constituted an unprecedented situation for studying e-commerce behavior under extreme conflict conditions. The aim of the article is to examine how Ukraine's digital commerce sector responded to the disruptions of active warfare, analyzing transformations in supply chains, consumer behavior, digital payment adoption, and small and medium-sized enterprise (SME) responsiveness. The research methodology includes a synthesis of academic literature, institutional reports, market analytics, and a primary consumer survey (n = 210, May 2025), this study identifies key adaptation patterns that emerged between 2022 and 2024. The results of research show that, contrary to expectations of sustained contraction, Ukraine's e-commerce market demonstrated remarkable adaptive capacity: online retail maintained a significant share of total retail sales and major platforms recovered within months of the invasion. The consumer behavior shifted significantly towards necessity driven purchasing, patriotic preference for domestic brands, and heightened price sensitivity. SMEs increasingly leveraged digital marketplaces to maintain operational continuity. Persisting structural challenges include rural digital infrastructure gaps, regulatory barriers to cross-border e-commerce, and logistics network fragility. The findings contribute to the emerging literature on e-commerce in crisis contexts and offer evidence-based recommendations for post-war economic reconstruction. The Ukrainian case provides broader lessons for digital economy responsiveness under geopolitical instability.

Keywords: e-commerce, Ukraine, war, digital economy, consumer behavior

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1. Introduction

E-commerce has been widely recognized as a transformative force in modern economies, enabling firms to transcend geographical barriers, reduce transaction costs, and access global markets (Czajkowski, 2011; Eurostat, 2023). Scholars have documented its capacity to accelerate economic development in emerging markets through improved resource allocation, entrepreneurial activity, and financial inclusion (Chaffey, 2015; Turban et al., 2018). However, the behavior of e-commerce systems under conditions of armed conflict remains comparatively underexplored in academic literature, largely because such extreme disruptions are rare and difficult to study systematically. The Russian invasion of Ukraine, launched on February 24, 2022, created precisely such a situation. The conflict inflicted massive destruction on physical infrastructure, displaced millions of people, severed established logistics routes and subjected the Ukrainian economy to repeated energy blackouts. Under such conditions, prevailing theory might predict a protracted collapse of consumer markets and digital commerce. Instead, available evidence suggest a more complex and in many respects counter – intuitive dynamic: Ukraine's e-commerce sector proved remarkably resilient, adapted with speed, and in some segments actually registered growth attributable directly to wartime conditions. This article has three main objectives. First, it provides a comprehensive review of the structural factors shaping Ukrainian e-commerce prior to and during the war. Second, it analyses the principal channels through which the conflict affected supply chains, consumer behavior, digital payments, and SMEs (small and medium-sized enterprises) performance. Third, it draws on primary survey data and secondary market data to construct an evidence-based assessment of the sector's trajectory and prospects. The research hypotheses developed on the basis of the goals of the article are as follows: H1: Structural factors in Ukraine facilitated proper utilization and development of the e-commerce sector after the outbreak of war in 2022; H2: Consumer spending in Ukraine changed significantly in the direction of the most essential and domestically produced goods; H3: E-commerce sector in Ukraine demonstrated resilience and contributes to the mitigation of the effects of war on the national economy.

2. Literature Review and Theoretical Framework

2.1. E-Commerce in Emerging Economies: Drivers and Barriers

The theoretical foundations of e-commerce research draw on multiple disciplines, including information systems, economics and organizational behavior. Porter's framework for competitive advantage (Öz, 2019) has been extended to the digital domain, with scholars identifying lower operational costs, market reach, and data-driven customer management as core sources of online com-

petitive advantage. Other authors (Molla and Licker, 2005) proposed an influential model of e-commerce adoption in developing countries, identifying perceived e-readiness, organizational readiness, and external environment as key determinants. Applying this framework to Ukraine reveals a society with high internet penetration (exceeding 90%) but historically lower rates of online transactional activity relative to its EU neighbors, constrained by consumer trust deficits, logistical fragmentation, and regulatory gaps.

Lawrence and Tar (2010) systematically documented the barriers to e-commerce in developing nations: inadequate telecommunications infrastructure, limited access to digital payment mechanisms, cultural preferences for in-person retail, and weak legal frameworks governing online transactions. These barriers were broadly present in Ukraine prior to war and have been compounded by the conflict's destructive impact on physical and digital infrastructure in affected regions. Yet, as argued by Sigma Consulting Group (2023) and confirmed by OECD analysis (2024), crises can paradoxically accelerate adoption by increasing relative convenience of digital channels when offline alternatives are disrupted or unsafe.

2.2. E-Commerce Under Crisis and Conflict

The academic literature on e-commerce under conditions of crisis has grown substantially since the COVID-19 pandemic. McKinsey's global research (2020) documented a dramatic acceleration of digital adoption during pandemic lockdowns, with five years of expected e-commerce growth compressed into approximately twelve months. The pandemic literature provides a useful comparator for Ukraine, though the wartime context differs in critical respects: physical infrastructure destruction, population displacement, sustained energy insecurity, and active combat operations create qualitatively different challenges for digital commerce than health related lockdowns. Within Ukraine specifically, Maksymenko (Maksymenko et al., 2024) documented the market's pre-war trajectory, characterizing it as exhibiting strong growth momentum disrupted by the 2022 invasion. Gamova et al. (2024) analyzed the innovative dimensions of e-commerce adaptation during the war, identifying platform flexibility and logistics restructuring as key resilience mechanisms. Sharov et al. (2024) examined the financial dimension, concluding that while absolute revenues declined in dollar terms in 2022, the relative share of online retail in total sales actually increased as physical retail suffered proportionally greater disruption. These studies collectively suggest that e-commerce, precisely because of its digital and distributed character, is better positioned than traditional retail to absorb the shocks of armed conflict.

2.3. Digital Payments in Conflict Economies

The resilience of digital payment infrastructure is a vital precondition for e-commerce. Research on financial systems in conflict zones have generally emphasized their fragility, yet the Ukrainian case offers evidence of significant institutional durability. The National Bank of Ukraine's (NBU) emergency response protocols, developed following the 2014 partial occupation of Donbas and Crimea, proved decisive in maintaining cashless payment continuity after February 2022 (European Payments Council, 2023). Yurieva (2024) analyses the post-war conceptual evolution of cashless payment systems in Ukraine, identifying tokenization, NFC technology, and mobile wallets as key vectors of change accelerated by wartime necessity. Visa's economic modelling (2024) demonstrates that each 1% increase in card usage contributes approximately $67 billion in annual consumption globally, underscoring the macroeconomic significance of Ukraine's payment digitalization for post-war recovery.

3. Methodology

This article employs a mixed method research design, combining systematic secondary analysis with primary survey data. The secondary analysis draws on academic journal articles, institutional reports from the OECD (2022) and UNDP (2024), market data from Promodo (2025), Statista (2024) and InVenture (2024), as well as policy documents and legal texts from Ukrainian governmental sources.

The primary data component consists of an online consumer survey conducted between May 15 and 30, 2025 (n = 210). The instrument comprised 19 questions covering online purchasing frequency before and after February 2022, product categories, motivations, payment methods, supply chain disruption experiences, income changes, and attitudes towards Ukrainian e-commerce platforms. The survey was distributed in Ukrainian and English languages via Google Forms, reaching respondents through university networks, social media, and the researcher's personal contacts. The sample included respondents from 18 Ukrainian regions plus Kyiv, providing good geographic breadth; 56.7% of respondents are female, 37.1% male, and 6.2% preferred not to disclose their gender. The largest age group was 18–24 years (36.7%), followed by 45–54 (16.7%), under-18 (13.3%), 35–44 (12.4%), 25–34 (11%), and 55+ (10%). The occupational distribution encompasses full-time employees (23.8%), self-employed (11.4%), part-time workers (11.4%), retired (8.1%), unemployed (6.2%), and pupils (7.1%), with students constituting the largest single group (29%). The survey's primary limitation is sampling bias: convenience sampling via the researcher's networks over-represents urban, younger, and more digitally active respondents. This limitation is partially mitigated by the geographic diversity of the sample and the bilingual distribution mechanism. Secondary sources are critically

evaluated for methodological robustness, recency, and source credibility. All monetary values reported in USD are converted from UAH using period-appropriate NBU (National Bank of Ukraine) exchange rates.

4. Research Results

4.1. The Ukrainian E-Commerce Market: Pre-War Baseline and Wartime Trajectory

Prior to the invasion, Ukraine's e-commerce market had experienced sustained growth, rising from approximately $1.2 billion in 2017 to an estimated $4 billion by 2020 – a figure representing an 8.8% share of total retail trade and a threefold increase over five years (Soul Partners & Baker Tilly Ukraine, 2021). Despite this expansion, the market was characterized by structural underdevelopment relative to regional peers: per capita annual e-commerce spending stood at approximately $104, nearly five times lower than in neighboring Poland. Major domestic marketplaces dominated the landscape, with Rozetka, Prom.ua, Epicentr, Bigl.ua, and Allo collectively accounting for over 82% of B2C online sales. The COVID-19 pandemic had already accelerated market maturation, driving 41% growth in 2020 and a further 27% in 2021 – significantly above the global average of 15%. By 2021, online marketplaces had developed sophisticated logistics partnerships, digital payment integrations, and multi-vendor platforms. This pre-existing digital infrastructure proved critical to the sector's ability to absorb the wartime shock. In 2024, e-commerce accounted for approximately 10% of all retail sales in Ukraine, with around 11 million active online shoppers conducting an average of 17 purchases per year (TS2 Technology & Strategy, 2025). Total online consumer spending reached approximately UAH 239 billion (approximately $5.9 billion) in 2024, representing a 25% nominal increase over 2023 (AllRetail Ukraine, 2025). However, when adjusted for UAH/USD exchange rate dynamics – the hryvnia depreciated significantly during the conflict – dollar denominated growth figures are more modest, highlighting the analytical importance of dual-currency reporting.

4.2. Supply Chain Disruption and Logistics Restructuring

The war inflicted severe structural damage on Ukraine's logistics network. Russia's blockade of Black Sea ports eliminated the primary export channel through which approximately 90% of Ukrainian agricultural exports had previously flowed, with grain exports declining by over 80% in the first months of the conflict (Zinchenko, 2023). Energy infrastructure attacks intensified from autumn 2022, producing recurring nationwide blackouts that disrupted warehousing, transport, and communications systems. This resulted in significant delivery delays and cargo damages, also in case of e-commerce. Companies responded by relocating warehousing capacity from eastern and central Ukraine to safer western regions, though this created acute warehouse

shortages in western cities and contributed to cost increases (inVenture, 2025). For domestic e-commerce, the logistics restructuring had direct consequences for delivery times, product availability, and operational costs. Nova Poshta – which processes approximately 85% of Ukrainian parcel deliveries – adapted through a series of innovations including battery-powered automated lockers, Starlink satellite connectivity for branch communications, and geo-distributed warehouse strategies. These adaptations enabled the company to maintain service continuity even during extended blackout periods, providing critical infrastructure for the e-commerce ecosystem (Nova Poshta, 2025).

4.3. Consumer Behavior: Shifting Priorities and Digital Adaptation

The wartime transformation of Ukrainian consumer behavior has been documented across multiple dimensions. The Ukrainian Retail Association reported losses exceeding UAH 50 billion in the retail sector by June 2022, with food retailers bearing a disproportionate share of the burden (Ukrainian Retail Association, 2022). This structural shock catalyzed rapid adaptation by both consumers and retailers. Consumer survey data from our primary study reveals a significant bifurcation in post-invasion shopping frequency. Out of 210 respondents, 36.2% reported shopping online more frequently than before the war, 28.1% maintained their pre-war frequency, 23.3% reduced online shopping activity, and 12.4% ceased online shopping entirely. The drivers of increased online activity were primarily practical: convenience (66,7% of the respondents), product availability (53,85), lower prices (53,5%), limited access to physical stores (36,7%), and the desire to support Ukrainian businesses (35,7%). Lopusnyak et al. (2025) document the emergence of what might be termed "wartime consumer austerity" – a systematic reorientation of household spending away from discretionary items towards essential goods, driven by income insecurity and heightened uncertainty. Income effects are significant: the primary survey of the authors found that approximately 60% of respondents experienced some form of income decline, with 25.7% reporting significant decreases and 11.9% reporting total income loss. Concurrently, 38.6% of survey respondents indicated they now always compare prices before online purchases, and 22.9% reported doing so frequently. Prior to the war, most respondents were making online purchases quite rarely, which represented 32.9% of participants, as the own research of the authors showed. This indicates that shopping online was not a common habit for people from Ukraine. Perhaps because they preferred shopping in physical stores, had limited access to digital services, or only used online platforms for occasional purchases. The second-largest group, 28.1%, reported shopping online once a month. These monthly shoppers were most likely balancing practical needs with budgeting, using e-commerce, when necessary, not just for entertainment. Meanwhile, 18.6% were weekly

shoppers. This group possibly relied more on online stores for regular items such as groceries, essentials, or frequent purchases, indicating a solid integration of digital platforms into their routines. Some respondents, to be more precise – 12.4%, indicated that they bought or sold something online on a daily basis. These individuals were clearly very active online consumers, probably due to the convenience or advantages such as discounts and fast delivery. They might have used online shopping for their groceries and food delivery, as it is now more and more convenient to do so. The smallest group, making up 8.1%, reported never shopping online, which could reflect a variety of factors, including lack of access to the internet or digital devices, a preference for traditional shopping methods, or economic constraints limiting their ability to participate in e-commerce. Once the full-scale war began, the situation shifted. A larger percentage of people, 36.2%, said they started shopping online more often. This indicates that for many, e-commerce became even more important, likely due to limited access to physical stores, safety concerns, or a need for convenience during times of disruption. Interestingly, 28.1% of respondents reported that their online shopping habits remained the same. It is possible that this group of people continued with their usual routines despite the war times. On the other hand, 23.3% of participants began shopping online less often, possibly due to economic challenges, changes in living conditions, or a reduced need for non-essential purchases. The cause of this change could be also due to the need to save more money as a majority of people from Ukraine now want to feel more secured and be sure that if something happens, they have a 'safety cushion' and can rely on that money. Moreover, a significant portion, 12.4%, stated that they had completely stopped shopping online. This may indicate serious financial hardship, relocation to areas with poor internet access, or simply a shift in priorities under wartime conditions. A notable attitudinal shift documented by Gradus Research Company (2024) is the growth of consumer economic nationalism: approximately 69% of Ukrainians now actively support domestic producers, and 56% of those who tried new brands during the war did so explicitly to support Ukrainian businesses. Respondents to the authors' survey confirmed this pattern, with 35.7% citing support for Ukrainian sellers as a primary reason for online shopping. The survey's trust assessment found 50% of respondents rating their trust in Ukrainian online platforms at 4 or 5 (on a 5-point scale), compared with only 19.6% expressing low trust (ratings 1 or 2).

4.4. Digital Payment Infrastructure: Resilience and Expansion

Ukraine's digital payment infrastructure underwent its most significant stress test and simultaneously its most rapid maturation during the war period. Drawing on emergency protocols developed in response to the 2014 conflict, the NBU moved decisively in the early days of the invasion

to maintain cashless payment functionality, actively encouraging retailers and service providers to prioritize card acceptance and imposing a UAH 100,000 cap on cash withdrawals while leaving digital transactions unrestricted. By 2024, the scale of cashless adoption was significant. According to NBU data (National Bank of Ukraine, 2025), Ukrainian consumers conducted over 8.6 billion card transactions totaling more than UAH 6.5 trillion, of which 94.6% by volume and 64.5% by value were cashless. Retail payments represented 73% of all transactions, with online purchases accounting for 13.6% by volume (UAH 622 billion). The total number of payment cards issued by Ukrainian banks reached approximately 132 million by January 2025 – a 15% annual increase – while the volume of actively used contactless cards grew 14% to 35 million. Tokenized NFC based cards surged by 33% to 16.5 million, such that every fourth active card in Ukraine is now tokenized (Association of Ukrainian Banks, 2025). The NBU's Power Banking initiative – a network of over 2,370 bank branches across approximately 400 cities equipped with backup power, alternative communications, and reinforced logistics – proved decisive in maintaining payment infrastructure continuity during blackout periods. This institutional response illustrates a broader pattern: wartime necessity drove institutional innovation that yielded durable improvements in digital financial infrastructure. Visa economic modelling estimates that a 5% annual increase in digital payment adoption over five years could reduce the size of Ukraine's informal economy by 11–13% while significantly boosting tax revenues (Visa Inc., 2024). Mastercard research, on the other hand, indicates that 58% of Ukrainian SMEs have now adopted digital payments, with over two-thirds reporting growth in both revenue and customer traffic attributable to digitalization (Mastercard, 2024). These findings suggest that Ukraine's digital payment transformation, accelerated by the war, will yield structural economic benefits extending well beyond the conflict period.

4.5. E-Commerce as a Lifeline for SMEs

Pre-war data from the OECD indicated that only 4.2% of small and 6.2% of medium-sized Ukrainian enterprises were involved in e-commerce as of 2021, far below the OECD average. The war has significantly altered this landscape. Digital platforms have offered SMEs the ability to reduce fixed costs by eliminating physical retail dependence, reach customers beyond conflict affected areas, and maintain business continuity despite forced relocation or physical infrastructure loss. Major domestic platforms – most notably Rozetka (18.4 billion UAH in 2022 revenue, fully recovered to pre-war scale within six months), Prom.ua (225.2 million UAH net profit in the first year of the war, with sales remaining 20% above pre-war levels), and Epicentr (1.5 billion UAH marketplace turnover in 2023) – have served as critical digital infrastructure for Ukrainian SMEs. International platforms have also expanded their role: Etsy hosts approximately 55,000

Ukrainian sellers, eBay approximately 12,000, and Amazon approximately 10,000, collectively enabling access to international markets. The Ukrainian government's Diia.Business initiative (Ministry of Digital Transformation of Ukraine, 2023) and the e-Robota program have provided essential institutional support. The e-Robota program disbursed over UAH 776 million in microgrants to 3,321 recipients in 2022 alone, generating more than 8,300 new jobs. By the end of 2023, nearly UAH 2.27 billion had been allocated to approximately 9,600 grantees expected to create over 20,000 additional positions (Government of Ukraine, 2024).

Despite these achievements, significant barriers to SME digital participation persist. Rural regions face acute digital infrastructure limitations, including damaged telecommunications networks and insufficient internet coverage. Complex bureaucratic procedures continue to restrict platform development, particularly for cross-border multi-vendor marketplaces. SMEs in rural areas often lack awareness of government support programs, and geographic disparities in access to Diia.Business centers constrain inclusive digitalization.

4.6. Legal and Regulatory Framework

Ukraine's e-commerce legal architecture is based on Law No. 675-VIII "On E-commerce" (Verkhovna Rada of Ukraine, 2015), which establishes the freedom to conduct business through digital channels, mandates the legal equivalence of electronic and written contracts, and provides the procedural framework for online transactions. Supplementary provisions in the Civil Code (Articles 205, 207, 641) and the Law "On Consumer Rights Protection" reinforce consumer protections in digital commerce. Petrunenko et al. (2023) have noted that while this framework was adequate for peacetime conditions, wartime circumstances have revealed gaps related to 'superior force' provisions, digital platform liability under martial law and cross-border data flows with EU partners. The 2023 Global E-commerce Access program implemented through Diia.Business represents a significant step towards bridging the knowledge and regulatory gap for Ukrainian SMEs aspiring to sell internationally. The PULSE digital analytics platform, launched by the Ministry of Digital Transformation, provides entrepreneurs with real-time market data to navigate a rapidly changing economic environment (Teremetskyi, 2024, p. 61). As Ukraine progresses towards a possible EU accession, harmonization of digital commerce regulation with the EU's Digital Single Market framework will be a central policy priority, with significant implications for cross-border e-commerce opportunities.

5. Discussion

The evidence reviewed in this article support a central empirical claim: Ukrainian e-commerce has displayed systemic resilience under the most challenging conditions, driven by a combination

of technological flexibility, institutional adaptability, and consumer behavioral adjustment. This finding contributes to a growing body of literature – exemplified by the pandemic-era studies of McKinsey and sectoral analyses from the OECD – suggesting that digital commerce systems possess structural properties enabling them to absorb and adapt to major disruptions more effectively than traditional retail. Several mechanisms contribute to this resilience. First, the distributed architecture of e-commerce platforms allows for rapid replication and geographic relocation of operational capacity. When the eastern warehouses were destroyed or evacuated in Ukraine, the western facilities expanded. Second, digital payment systems proved more robust to physical infrastructure degradation than cash-based alternatives, with the NBU's proactive institutional response preventing the payment system paralysis that might otherwise have accompanied the energy infrastructure attacks. Third, the shift to online channels served as a form of risk management for both consumers and businesses: for consumers, it eliminated the safety risk of physical retail visits in conflict affected areas, while for businesses, it reduced exposure to the fixed costs and physical targeting vulnerabilities of brick-and-mortar operations.

However, the resilience narrative should not obscure genuine fragility. The 12.4% of our survey respondents who ceased online shopping entirely, and the 60% who experienced income declines, represent millions of Ukrainians for whom e-commerce has become less, not more, accessible during the war. The displacement of millions of Ukrainians – both internally and as refugees to the EU countries – has altered the demographic composition of the domestic market in ways that aggregate statistics may understate (Razumkov Centre, 2024). Rural communities and older populations, already marginally integrated into digital commerce, face heightened exclusion as the war's damage concentrates in their regions and as government support infrastructure remains predominantly urban. The dual currency analytical framework employed in this study – evaluating e-commerce performance in both UAH and USD – reveals an important analytical subtlety. Nominal UAH revenue growth across most e-commerce categories in 2024 conceals significant real-value erosion when measured in more stable international currency. The electronics sector's 18% UAH growth translating to only 8% USD growth is emblematic: Ukrainian e-commerce is growing in volume and in domestic purchasing power terms, but the dollar denominated value of its output remains constrained by macroeconomic pressures including currency depreciation, inflation, and reduced real wages. Policymakers and international partners evaluating Ukraine's e-commerce recovery should employ both approaches to avoid systematic misinterpretation.

Comparative perspective is instructive. UNCTAD's analysis of digital economy development in the Global South (2023) documents similar patterns of crisis-accelerated e-commerce adoption, particularly in conflict-affected or disaster-prone economies. The Ugandan and Rwandan experiences of mobile money growth following institutional disruptions share

structural parallels with Ukraine's cashless payment surge. What distinguishes Ukraine is the combination of pre-existing technological sophistication, strong institutional infrastructure (NBU, a functioning banking system, established logistics players) and significant international support, which together enabled a faster and more comprehensive digital adaptation than in most comparator cases.

6. Conclusions and Policy Recommendations

This article has examined the multidimensional impact of Russia's invasion in 2022 on Ukraine's e-commerce sector. The first general conclusion is that Ukraine's e-commerce ecosystem has demonstrated exceptional resilience, recovering rapidly from the initial shock of February 2022 and achieving sustained market growth in subsequent years. The sector's distributed digital architecture, pre-existing platform infrastructure, and the adaptive responses of major players (particularly Rozetka, Nova Poshta, Prom.ua, and the NBU) were central to this performance. Second, the war has accelerated structural changes in the e-commerce landscape that are likely to persist beyond the conflict: the expansion of cashless payments, the growth of grocery e-commerce and social commerce, the digital transformation of SMEs, and the emergence of economic nationalism as a significant consumer motivation. These changes create a larger, more sophisticated digital market base from which post-war recovery can proceed. Third, significant distributional challenges remain. The benefits of e-commerce resilience have been unevenly distributed, with urban, younger, and higher-income populations benefiting disproportionately. Rural areas, older consumers, and those most severely affected economically by the war face heightened exclusion from digital markets. The presented conclusions allow to state that all of the research hypotheses indicated in the introduction of the article, H1, H2, H3, are confirmed.

On the basis of these findings, the following policy recommendations are advanced. For the Ukrainian government: continued investment in telecommunications infrastructure in rural and conflict affected areas, simplification of regulatory procedures for cross-border e-commerce, expansion of e-Robota and Diia.Business programs with specific outreach to rural SMEs, and prioritization of e-commerce framework harmonization with EU Digital Single Market standards as part of accession preparations. For international partners and development organizations: targeted support for Ukrainian SME digital export capacity, focusing on logistics cost reduction and foreign language platform integration, investment in digital payment infrastructure resilience for conflict affected regions and systematic data collection on e-commerce performance under conflict conditions to contribute to the growing scholarly literature in this field. For business stakeholders: the Ukrainian e-commerce market presents genuine opportunities for firms with the resilience and adaptability to operate in a high-risk, high-volatility environment. The large, digitally

engaged consumer base, sophisticated payment infrastructure, and government commitment to digital transformation represent favourable structural conditions that will strengthen considerably in the post-conflict period.

In conclusion, Ukraine's e-commerce experience during the 2022–2024 war period offers a compelling case study in digital economy resilience. It demonstrates that e-commerce – when supported by robust institutions, adaptive platforms and supportive policy – can serve not merely as an economic convenience but as a critical component of national economic survival and recovery.

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