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INNOVATIVE ASPECT OF E-COMMERCE DEVELOPMENT IN UKRAINE

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Introduction. The share of e-trading in the total volume of the Ukrainian retail sales market tends to increase. Since innovative trade approaches open new perspectives and provide the possibility of doing business in conditions of significant challenges, the role of e-commerce in restoring the country's economy becomes more significant. The social role of e-commerce as a source of vital goods for a population is also growing. Therefore, the study of the e-commerce market and analysis of the impact of war on its development have become important tasks.

Aim and tasks. The purpose of this study is to examine the state of the e-commerce market using statistical data, analyze the impact of the war on the development of e-commerce, identify the main market trends, and forecast the main indicators of e-commerce. This determines the following tasks: establishing the peculiarities of the e-commerce market in Ukraine, establishing obstacles to the development of e-commerce, identifying opportunities that e-trading opens up for Ukrainian entrepreneurs, and determining the conditions to be taken into account in the transition of retail trade to e-trading under the challenges of war.

Results. The negative impact of significant market changes in the 2022-2023 was compensated by the growth in active e-commerce users. A change in the growth rate of users by 40% in 2022 was confirmed. This indicates that hostilities changed the range of e-commerce products and that the market share of basic necessities exceeded 50%. The highest annual revenue per user for food products will be 89.4% ahead of the product group closest to this indicator. According to the indicator "Average income from e-commerce per client", it is predicted to reach 2019 only in 2026. Sales changes for the main product groups in 2024 have been established. According to the "Highest annual revenue per user" indicator, food products will exceed the value for 2023 by 25% and personal care products by 9.4%.

Conclusions. Innovative technologies (e-marketplace, analysis of buyer profiles, omnichannel communication with consumers, m-trading, etc.) that contribute to the development of e-commerce and the interaction of these technologies and market needs are identified. The peculiarities of the Ukrainian e-commerce market during the war were established. Obstacles to the development of e-commerce and the opportunities that e-trading opens for Ukrainian entrepreneurs have been identified. The conditions that must be considered during the transition from retail trade to e-trading due to the challenges of war, which is especially important for small and medium-sized enterprises, are determined.

Keywords: e-commerce, trade, innovation, information and communication technologies, market structure.

1. Introduction.

E-trading is the discovery of new opportunities and the use of new approaches to the ability of trading enterprises to survive and even flourish in the face of significant challenges. It is no coincidence that the rapid growth of the global e-commerce market occurred during the pandemic crisis of 2019 when other retail trade areas collapsed. The development of e-commerce is also taking place under the conditions of a full-scale war after a short period of sales decline at its beginning, when Ukrainian e-commerce lost 82.7% of contacts with buyers, and the drop in e-trading revenues amounted to approximately 92% (Global24, 2023). However, unlike offline trade, the e-trade market has proven to have an extremely high level of adaptability, which has ensured the growth of the number of regular customers due to their outflow from the offline trade market. Consequently, in 2023, online trade volume increased to UAH 151 billion, 17% higher than the corresponding figure in 2022 (Statista, 2024). It is also essential that e-commerce management has gained experience in functioning during a pandemic and war, which will contribute to the stability of its business under the conditions of new crises.

The growth of the e-commerce market is primarily influenced by the speed and efficiency of innovation. If buyers find the right products through well-known search engines, such as Google, using computers, then due to the spread of mobile devices that provide the opportunity to use the Internet, approaches to e-commerce must change. Therefore, e-commerce must change its strategy, software, and client communication methods. As a result, e-commerce provides opportunities for personal consumer-seller contact using push notifications, bonuses, and loyalty cards to attract regular customers, and geolocation to assess the prospects and trends of micro markets. In 2024, it is predicted that m-commerce will constitute 72.9% of the total e-commerce volume (Statista, 2024).

The innovative technique of “Buy Online Pay In Store” is also spreading, according to which buyers can evaluate the advantages of a specific product, look at it at the location of the trading company but order the product online, and other innovative approaches.

Significant dynamic changes in the e-trading market under new challenges require a study of the state, prospects and directions of e-trading development in Ukraine.

2. Literature review.

Much research is devoted to studying various aspects of e-trading, particularly in the Ukrainian market. Thus, Syniavska (2019) indicated that Ukraine occupies one of the leading places among European countries in terms of the dynamics of e-commerce development. There is a potential to expand e-commerce in Ukraine because more than a third of citizens are not yet covered by the Internet. It was noted that a significant level of mistrust of domestic entrepreneurs and the imperfection of the regulatory and legal field in this area also hinder the development of e-commerce.

Romaniuk (2023) identified the main problem areas of e-commerce: protection of customer data, creation of omnichannel communication with customers, simplification of purchase procedures and procedures for returning, the application of an evaluation system and examination of overall patterns in the growth of the online business sector. Romaniuk (2023) also points out a feature of e-commerce for starting a business: relatively minor barriers to entry into the market.

Kharchenko and Yaremych (2023) investigated value creation chains in e-commerce, which allows profit maximization and cost reduction technologies to be introduced. It is indicated that the main factors that encourage entrepreneurs to introduce innovative e-commerce technologies are flexibility and ease of use, external pressure, and obvious usefulness.

Novikova et al. (2023) studied the mutual multiplier effect of innovative digital technologies, particularly developing digital platforms, transferring seller-buyer communication to data clouds, and the latest trade technologies (e-commerce, m-commerce). The importance of innovation for developing “E-Business” and the interconnectedness of developing e-commerce and information and communication technologies is indicated by Singh et al. (2004).

Kurniawati et al. (2020) pointed out the need to consider the peculiarities of the management of e-commerce companies as belonging to the sphere of innovative activity.

Verbivska et al. (2023) indicated that the development of e-commerce is facilitated by an environment open to innovation, which requires not only innovative infrastructure but also consumers ready for innovation. Wang et al. (2022) extend the need for innovation to all areas related to e-commerce, particularly logistics. It is indicated that the choice of a digital platform for e-commerce determines the choice of a logistics activity model.

Kalkha et al. (2023) also stated that e-commerce requires not only the creation of e-trading logistics but also the creation of a network multi-channel system for supporting logistics processes that are simple and reliable to use.

Bulakh (2023) stated that the viability of an e-commerce enterprise is primarily determined by the reliability and innovative nature of its cyber security system. Chikov et al. (2023) indicate the need to use innovative financial tools, particularly blockchain, in the field of e-commerce.

Zhao et al. (2020) indicated a growing interest in e-commerce management for analysing big data, mainly to increase the effectiveness of their marketing strategies. Zharnikova (2019) indicated the need to introduce innovative methods of checking a partner's reliability in e-commerce, using Expirenza, a tool for retaining/returning consumers. Hlinenko and Daynovskyy (2018) stated that success in e-commerce primarily depends not on the business model but on implementing innovations and effective fulfilment.

Mainka et al. (2023), Lakiza and Bala (2020), and Zayats and Kapko (2023) analysed prospects for developing e-commerce in Ukraine as related to trends in the development of the global e-trading market.

However, these prospects are related to the indirect impact of technological development, leading to the same global and local consequences. Nowadays, Ukrainian e-trading is only on the way to sales on the global market (Yatsenko et al., 2019; Kozytska, 2021).

Zayats and Kapko (2023) pointed to a significant, almost an order of magnitude larger, gap between small and large businesses regarding digital e-commerce tools, which confirms the unpreparedness of a large-scale transition to e-commerce for the trade of small businesses. As indicated in this study, this is caused by a need for more financial resources and the necessary professional level of personnel training.

Ilchuk et al. (2023) stated that a high level of shadowing characterizes the e-commerce market, and directions for its reduction have been identified. In particular, this should be facilitated by the prospect of Ukrainian e-commerce enterprises entering the European market (Mostova and Shaikhutdinova, 2023). At the same time, Berezovska et al. (2022) indicated that this requires harmonization of the regulatory and legal field of Ukraine and the EU.

Zosimov and Berko (2018) indicated that small and medium-sized Ukrainian businesses do not pay enough attention to such a marketing strategy as the "promotion" of information about themselves in well-known search engines.

Using the example of the impact of the COVID-19 pandemic, Berher et al. (2021) indicated an increase in the volume of the e-commerce market in crisis conditions due to the acquisition of the habit of buyers to purchase goods and services from e-commerce enterprises.

The above review of research indicated the need for: a study of the state of e-commerce in Ukraine and the effects of full-scale hostilities on the e-trading market; establishing the peculiarities of the e-commerce market in this period; identification of obstacles to the development of e-commerce; establishment of opportunities that e-trading opens up for Ukrainian entrepreneurs. For practical purposes, it is also urgent to determine the conditions that need to be considered in the transition of retail trade to e-trading under the challenges of war.

3. Methodology.

General and unique methods of dialectical cognition were used during the research. Thus, the comparison method was used to study the state of the e-commerce market before and after the full-scale war.

The method of critical analysis was applied to the study, analyzing the adaptability of e-commerce over offline commerce, identifying obstacles to its development in Ukraine, examining its potential during times of crisis, and establishing the stimulating nature of the opportunities for the expansion of e-trade.

An analysis and synthesis approach was employed to navigate the shift from retail trade to e-trading during times of conflict. Mathematical methods were utilized to investigate the dynamics of online purchases amidst a full-scale war. A compensatory mechanism was identified to account for significant fluctuations, and the growth rate of user numbers before and after the war was analytically presented. This data was extrapolated to obtain forecast indicators.

4. Aim and tasks.

The purpose of this study is to examine the state of the e-commerce market using statistical data, analyse the impact of full-scale hostilities on the development of e-commerce to identify the main market trends and forecast the leading indicators of e-commerce.

This led to the following tasks: examining the distinctiveness of the e-commerce industry in Ukraine; pinpointing the hurdles that hinder the progress of e-commerce; highlighting the prospects that e-trading presents for Ukrainian business owners; and evaluating the factors that must be considered when transitioning from traditional retail to e-trading amidst the difficulties brought about by war.

5. Results.

Studies of the impact of the COVID-19 pandemic indicated that online sales in the global market increased during this period. During the pandemic, online sales volumes in the Ukrainian retail market increased by 7% (Statista, 2024).

During the full-scale war, after a short period of reduction in the volume of online trade in February-May 2022, the market began to recover. This is evidenced by the recovery of the rate of increase in the market share of online trade in the total volume of the retail sales market (Table 1).

Table 1. Comparative dynamics of sales channels year by year, %.

Year	Sales direction			
	Off-line, %	On-line, %	Off-line, UAH million	On-line, UAH million
2017	98.5	1.5	577535.1	8795.0
2018	98.4	1.6	657675.7	10693.9
2019	98.3	1.7	779990.1	13489.1
2020	97.7	2.3	848312.8	19970.5
2021	97.2	2.8	1015270.0	29246.5
2022	99.6	0.4	967257.0	3884.6
2023	98.2	1.8	1002543.4	18376.6

Source: based on data Statista (2024).

Also, a comparison of the efficiency of demand research and, accordingly, the replenishment of warehouse stocks of online and offline trade, the introduction of the necessary resources to perform the appropriate volumes of work indicates a significant lag of the latter in this direction during the war.

This leads to the loss of off-line trade buyers and, due to this, an increase in online purchases. Ensuring the speed of receiving orders also affects the increase in online sales.

The restoration of the damaged courier and postal services infrastructure facilitated this. The major destruction of warehouses and logistics infrastructure led to a large number of small operators leaving this market. Large operators New Post LLC, JSC “Ukrposhta”, and Meest Express Poshta LLC are unevenly resuming operations because of damage to their infrastructure. New Post LLC is more operational, which allowed it to secure a leadership position in sending parcels to 85% of the market.

Innovative measures ensure the speed of parcel deliveries and the stability of the New Post LLC branches. Thus, threats of power outages are levelled by the use of batteries for the reliable functioning of parcel storage chambers, the introduction of StarLink for continuous customer service, etc.

The mentioned factors, in particular, lead to greater adaptability of e-commerce compared to offline trade under crisis conditions.

There is a tendency to increase the combination of online and online trade for trade enterprises or even the complete transition of small and medium-sized entrepreneurs to online trade. The war also stimulates the initiative to create one's own business, and e-commerce is a promising direction for developing entrepreneurial activity in accordance with changes in the labour market and competitive properties of managers (Korolchuk et al., 2021).

The transition from offline trading to e-trading allows for a significant reduction in the costs of small business market fees (for renting premises and additional costs) and contributes to the possibility of expanding the client base outside the area of the immediate location of the enterprise. The development of small entrepreneurship in e-commerce is also a stimulus for economic recovery (Arsalan Nazir and Saleem Khan, 2023).

One of the problematic issues in developing e-commerce is the need for compliance with the modern requirements of the country's digital infrastructure, which primarily hinders innovative approaches to trade in rural areas. This factor is aggravated by the significant destruction of the digital infrastructure during the war.

The regulatory and legal field also narrows the opportunities for the development of digital infrastructure due to complex permitting procedures and a significant number of restrictions. In particular, this harms the development of such a necessary element of digital infrastructure as digital platforms, which leads to monopolization in this field of activity. Digital platforms make it possible to increase the competitiveness of e-commerce enterprises and ensure their development, and contribute to the effective interaction of trade, financial and logistics companies, which minimizes the costs of e-commerce and provides favourable prices.

Digital platforms also make it easier and cheaper for sellers to process large amounts of data to analyse consumer profiles of buyers, forecast volumes, and the nomenclature of their purchases.

The Ukrainian digital platforms Prom.ua and Rozetka.ua collectively provide approximately 82.6% of B2C online sales operations (Volynchuk et al., 2020). Even during the war, the volume of annual sales on the Rozetka.ua platform made up more than $350 million, and the daily number of visits to the Rozetka.ua site is 1.5 million potential consumers (Novikova et al., 2023).

Prom.ua and OLX implement most C2C online trading operations in Ukraine (Kublitska, 2023). The volume of annual sales on the Prom.ua platform exceeds $100 million, the number of active buyers is ~5 million, and the daily number of site visits exceeds 400,000.

Platforms Ria, Allo, and Bigl are less popular among Ukrainians. Among foreign e-commerce marketplaces, AliExpress is in demand among Ukrainians. International digital platforms are used for export online sales: Etsy (where 55,000 Ukrainian enterprises are registered), eBay (12,000 registered Ukrainian enterprises), Amazon (10,000 Ukrainian enterprises), Zalando, Shopify, Europagesi, WLW (Webpromo, 2023). This, in particular, shows the growing trend of Ukrainian e-commerce in foreign markets.

Before the full-scale invasion, e-commerce in foreign markets was about $600 million, 0.88% of Ukraine's export volume. The growth rate of e-commerce volumes in foreign markets (2021 to 2020) was approximately 50%. At the same time, the factors restraining e-commerce in the domestic market of Ukraine are not only the lack of competition among Ukrainian platforms but also the non-compliance with the use of innovative technologies:

- a significant gap with the digital markets of the regions;
- restrictions on the use of block chain technology;
- preferential use of only one business model and not a set of them.

This leads to the fact that Ukraine's digital markets should be given more attention to international transaction platforms.

The volume of the e-commerce market in Ukraine in 2020 exceeded the previous year's indicators by 41% and, in monetary terms, amounted to $4 billion, i.e. 8.8% of the Ukrainian retail market (Deloitte in Ukraine, 2022).

Considering that the volume of the e-commerce market in 2021 increased almost three times compared to 2016, scientists predicted its doubling by 2025. That is, the potential for increasing e-commerce market volume was available in Ukraine, which is evidenced in particular by the rate of year-on-year sales growth for the period 2017-2021 (Table 1).

By 2022, the number of consumers in the domestic market and the population's purchasing power had deteriorated and decreased owing to the occupation of part of the territory. Logistics and warehousing problems caused by the war have also led to a decline in e-commerce volume. As a result of the increased risk of loss of warehouse stocks, warehouses were moved mainly to the west and south of the country, which also increased transportation costs. Military operations and the dynamic emergence of new threats led to significant unevenness in the number of purchases from month to month (Fig. 1).

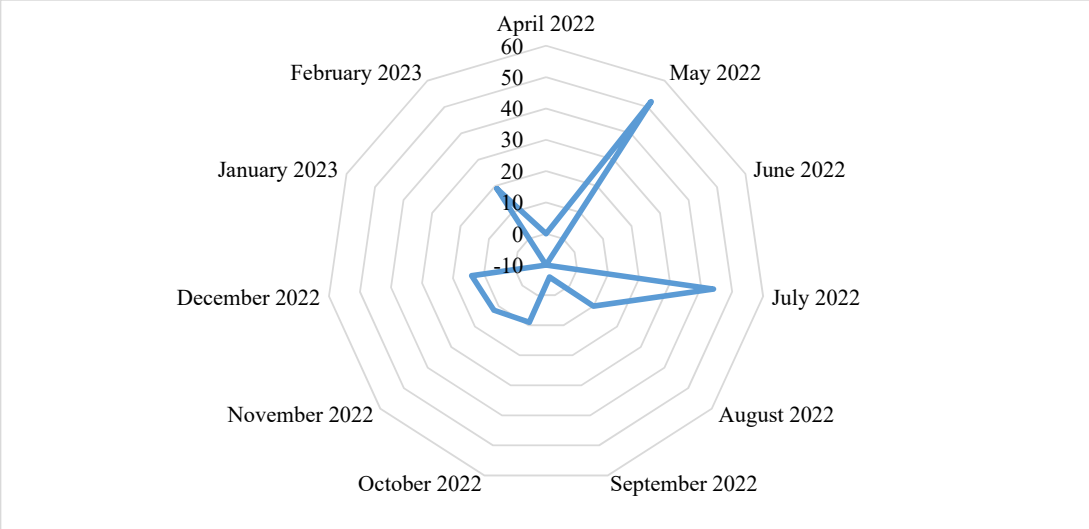

Fig. 1. Dynamics of online purchases during the full-scale war, month to month, %.
Source: based on data Dubel and Barvinchenko (2023).

At the same time, significant fluctuations in the number of purchases are compensated by the growth in the number of permanent active users of online trade (Fig. 2). Figure 2 also shows that full-scale military action did not break the smooth functional dependence of the number of permanent active e-commerce users over time. That is, this indicator had no significant jump-like changes in 2017-2023.

The research confirmed a change in the growth rate of the number of users, as evidenced by a significant decrease in the slope ratio tangent to the line of functional dependence (equations 1 and 2) from 1.33 from 2017 to 2021.

This corresponds to row 1 in Fig. 2 and is analytically represented by equation 1, up to 0.95 for 2022 and subsequent years, which corresponds to row 2 in Fig. 2 and is analytically represented by equation 2, that is, by 40%, which is evidence of the impact of the war on the online trade market:

$$y = 1{,}33x + 5{,}45 \quad (1)$$

$$y = 0{,}95x + 12{,}5 \quad (2)$$

where y is the number of e-commerce users, x is the value of the time series.

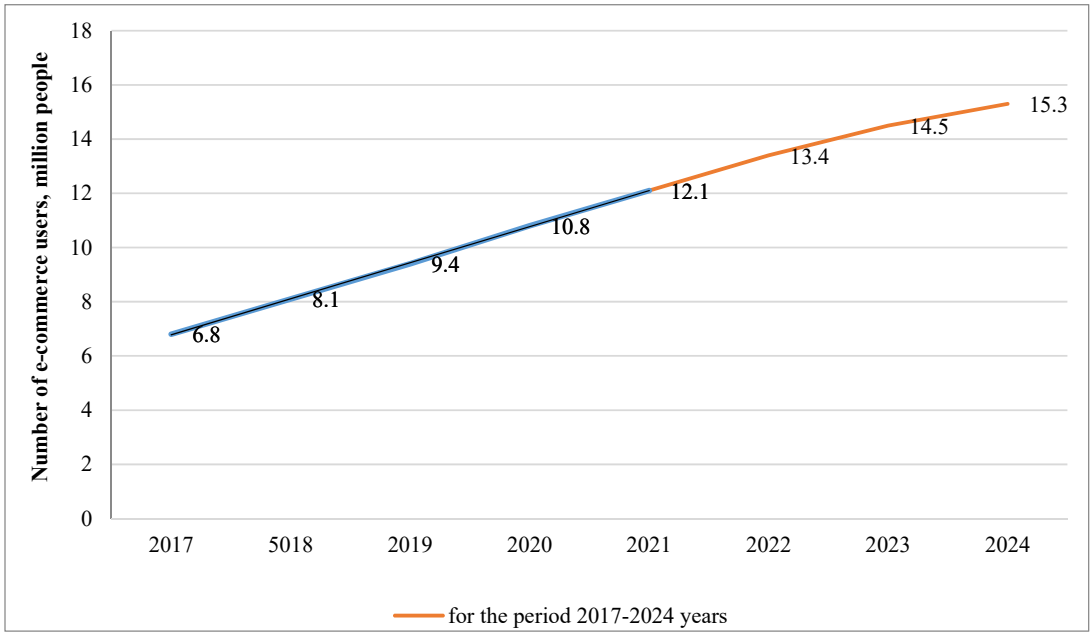

Fig. 2. Dynamics of the number of active e-commerce users, million people.
Source: based on data Statista (2024).

The linear nature of the functional dependence made it possible to extrapolate the data to obtain a forecast indicator for the year 2024 (Fig. 2). Full-scale hostilities also led to a radical change in the nomenclature of purchases. Preference began to be given to food products with an extended shelf life, pharmaceutical products, hygiene products or clothes (Górka-Chowaniec, & Sikora, 2023). The market share of essential goods exceeded 50%.

A characteristic example of the change in buyers' preferences for online trade is that emergency military tourniquets to stop bleeding, metal detectors, and shovels topped the list of the most popular products 2023. Full-scale hostilities also significantly changed the attitude of Ukrainian consumers toward brands. The change in the highest annual income of e-commerce entities per user by product range was also studied (Fig. 3).

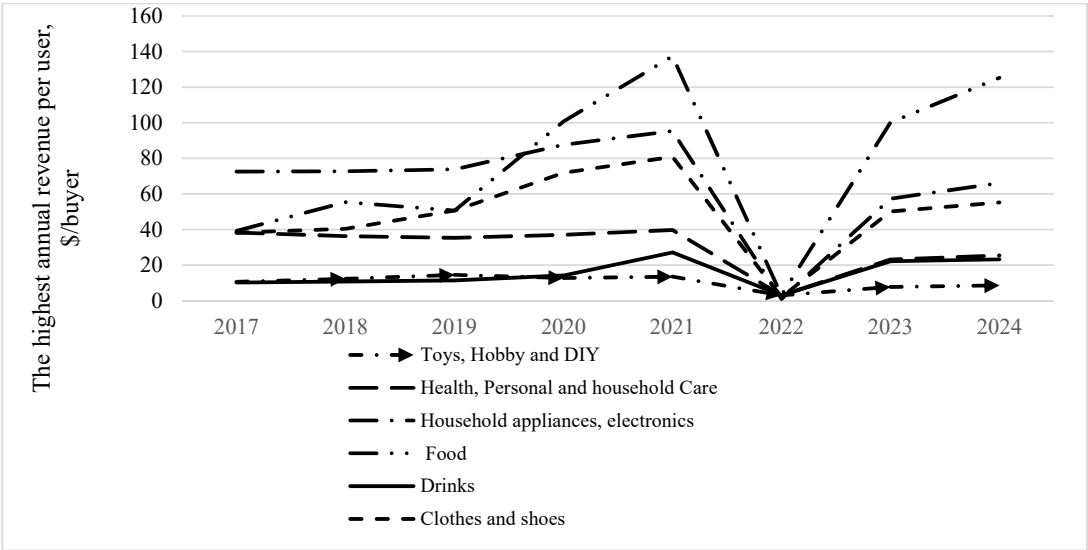

Fig. 3. The highest annual revenue per user by product range, $/buyer.
Source: based on data Global24 (2023).

The changes in this indicator make it possible to estimate sales volumes by main product groups considering the forecast values of the number of active e-commerce users in 2024 (Fig. 2).

The highest annual revenue per user for food products in this period will be 89.4% ahead of the product group "Household appliances, electronics", which is closest in terms of this indicator, which in previous periods was ahead of the food group (Fig. 3).

The dynamics of changes in the highest annual income of e-commerce entities per user by product range also make it possible to estimate the value of the indicator "Average income from e-commerce per customer" in 2024 (Fig. 4), which, according to forecast, will amount to $151.2 per consumer.

This indicator is significant, in particular, for comparing the development and dynamics of e-commerce in different countries.

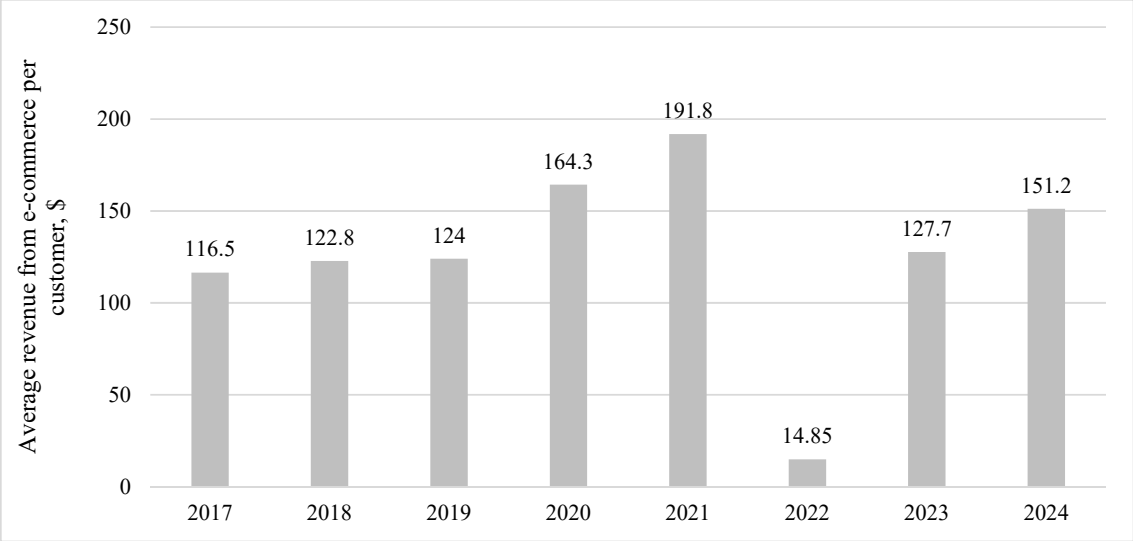

Fig. 4. Average e-commerce revenue per client, $.

Source: based on data Global24 (2023).

The highest value of the indicator "Average income from e-commerce per client" for the period considered, as seen from Fig. 4, was reached in 2019 and was $191.8 per person. At the same time, the highest value of this indicator is the lowest among neighbouring European countries. For comparison, in Poland during this period, it amounted to $541 per person. The full-scale war led to a decrease in the indicator "Average e-commerce revenue per customer" in 2022 by almost ten times compared to its value in 2021. If the level of external and internal threats does not increase, it is possible to predict reaching the level of 2019 only in 2026. The above forms the following peculiarities of the e-commerce market in Ukraine:

• lack of market saturation for the main product groups due to dynamic demand;

• the presence, at the same level as external and internal challenges, of significant prerequisites for market growth, which, in particular, is evidenced by the relatively high growth rates of online sales;

• the need for a flexible response to changes in the purchasing power of the population, in particular, an operational change in the assortment;

• low level of electronic payments in retail e-commerce (80% of payments are cash payments, bank cards account for only 4% of payments, p2p service is less than 1%);

• not significant growth rates of omnichannel communication of e-commerce enterprises with customers, combinations of four communication models are used to a greater extent as e-store, digital offer board, e-marketplace and price aggregator;

• significant uneven development of e-trading infrastructure by direction, geographical location, logistics direction;

• high consolidation of the e-commerce market (~50 large companies provide ~33% of e-trading turnover in Ukraine);

• consumers' need for personalization of the e-commerce process;

• restraining regulatory policy of institutional structures regarding the implementation of the latest forms of e-banking.

The transition of retail trade to e-trading under conditions of war needs to take into account the following:

• providing access to goods and services that provide basic daily human needs. This increases the requirements for the assortment of goods so that the consumer has the opportunity to choose the price-quality ratio he needs;

• ensuring effective communication between the seller and the buyer, including the possibility of their direct informational contact. This requires a fast and reliable connection, which is impossible during martial law. A site interface that provides an opportunity to choose and buy a product simply and understandably is also needed;

• the need to implement effective and reliable delivery of the goods, which requires the promptness of its dispatch, reduction of logistical risks, and ensuring convenience of delivery for the buyer. Buyers often prefer sellers that provide the shortest delivery time. The increase in risks during the transportation of goods requires the introduction of the order tracking function, which will increase the level of trust of buyers in the seller.

Fulfilling these requirements increases a seller's competitiveness in the e-commerce market. The opportunities that e-trading opens up for Ukrainian entrepreneurs include:

• increase in sales volumes even under unfavourable conditions and stagnation of sales in areas close to the war zone;

• expansion of sales markets and reduction of export barriers;

• minimization of costs, primarily for warehouse and logistics operations, rent of shops, and wages, which allows for reduced prices and increased sales volumes;

• increasing convenience for buyers, providing the opportunity to buy at any time of the day and from any location, which increases sales volume.

• increasing marketing efficiency using digital platforms;

• use of new analytics tools, prompt detection of customer reactions, and quick adaptation to dynamic challenges;

• formation of personalized offers to buyers;

• effectiveness of testing new goods/services;

• facilitation of Access to foreign markets;

• reducing the sales cycle, especially in the B2B market segment.

Factors that contribute to e-commerce:

• development of digital infrastructure without the need for traders to spend financial resources on it;

• introduction of a digital payment system, which facilitates online shopping and secures transactions from criminals;

• increasing customers' habituation to online purchases and increasing their trust in this form of sales,

• introduction of legal mechanisms for dispute settlement.

Unfavourable factors under martial law conditions:

• decrease in demand due to the transfer of a significant number of consumers to other countries; decrease in population income levels and decrease in consumer confidence;

• restriction of access to receiving shipments due to military operations;

• lack of IT specialists to support e-commerce due to mass migration and mobilization of specialists;

• The one-time transition of Ukrainian entrepreneurs to e-commerce increases competition in the market and, for a certain time, increases market uncertainties;

• increased risks for logistics and transport operations, increased costs for their implementation;

• an increase in payment risks due to a decrease in the level of discipline of payment system operators and an increase in psychological stress on operators.

The formation of the forecast for the development of e-commerce in 2024 is based on the assumption of the equality of the slope ratio of the functional dependence in 2019-2021 and– 2023-2024, that is, on the similarity of the influence of the main factors on the market in these periods. This is facilitated by the relatively stable level of e-commerce market risks (Gustera et al., 2020), which leads to linear development trends without significant external influences (Malyuta et al., 2019), and the assumption of no increase in military threats. Based on the above, it can also be stated that in the conditions of the continuation of the war, the volume of purchases of food products and personal hygiene products on the e-commerce market will increase with the growth of the total sales volume because these are essential goods. According to the indicator "The largest annual revenue per user" in 2024, food products will be $125/customer (which will be more than the indicator of 2023 by 25%), personal care products will be $25.4/customer (more than the indicator of 2023 by 9.4%).

In 2024, the volume of purchases of pharmaceutical goods (according to the indicated indicator by 10% to the level of 2023), household medical equipment, and medical equipment for use by the military will increase. Owing to the increase in the requirements for matching the price and quality, the sales volume of clothing and footwear will also increase. The consumption of military and protective equipment is also high.

The share of expensive goods, such as household appliances and electronics, in total sales volume will decrease. The growth rate of e-commerce volumes depends primarily on the solvency level of the central mass of consumers.

6. Conclusions.

An analysis was conducted on the e-commerce market pre and post a full-scale war. The study revealed that despite the shock impact of military operations, the retail sales market share of e-commerce continued to grow consistently year after year. The factors that contributed to e-commerce's superior adaptability compared to offline commerce were identified.

Prerequisites and obstacles to e-commerce development are also discussed. The dynamics of online purchases during the full-scale war were studied, and the results indicated that military actions led to significant fluctuations in this indicator in 2022 and at the beginning of 2023. The negative impact of such changes on the market was compensated by the constant growth in the number of permanent active users of online trade, which was observed over the entire research period of 2017-2023. At the same time, the research confirmed a change in the growth rate of the number of users in 2022-2023, as evidenced by a significant decrease in the slope ratio tangent to the line of functional dependence - from 1.33 from 2017 to 2021 to 0.95 for 2022 and in subsequent years, that is, by 40%, which is evidence of the impact of the war on the online trade market. The linear nature of functional dependence made it possible to extrapolate the data to obtain a forecast indicator for the year 2024.

This indicates that full-scale hostilities led to a radical change in sales nomenclature. Preference began to be given to food products with extended shelf lives, pharmaceutical products, hygiene products, clothes, and shoes. The market share of essential goods exceeds 50%. A characteristic example of the change in buyers' preferences for online trade is that emergency military tourniquets to stop bleeding, metal detectors, and shovels topped the list of the most popular products in 2023.

Full-scale hostilities also significantly changed Ukrainian consumers towards brands. With slight differences in age groups, preference is given to those who support the Armed Forces of Ukraine (~45%). There is a negative indicator for companies that continued to operate in Russia (~37%), support for the volunteer movement (~22%), the presence of a clearly expressed political position (~20%), and brand language (~20%).

The study of changes in the highest annual revenue of e-commerce entities per user by product range made it possible, considering the forecast values of the number of active e-commerce users in 2024, to estimate sales volumes by individual product groups.

The highest annual revenue per user for food products in this period will be 89.4% ahead of the closest product group in terms of this indicator, "Household appliances, electronics", which in previous periods was significantly ahead of the food products group.

The dynamics of changes in the highest annual revenue of e-commerce entities per user by product range also provided an opportunity to estimate the value of the "Average e-commerce revenue per customer" indicator in 2024. It is noted that if the level of external threats does not increase, it is possible to predict the level of the most successful year, 2019, according to this indicator only in 2026.

Peculiarities of the e-commerce market in Ukraine are formulated. The conditions that must be considered during the transition from retail trade to e-trading under martial law are specified. Fulfilment of these requirements increases the seller's level of competitiveness in the e-commerce market.

The opportunities that e-trading opens up for Ukrainian entrepreneurs are indicated. The conducted research allows to state that in the conditions of the continuation of the war, the volume of purchases of food products and personal hygiene products on the e-commerce market will grow by the growth of the total volume of sales and since these are essential goods.

The volume of purchases of pharmaceutical goods, household medical equipment and medical equipment for use by the military will increase. Due to the growth of requirements for price and quality, sales volumes of clothing and footwear will also increase. Consumption of military equipment and protective equipment will also be high. The share of expensive goods will decrease in the total volume of sales. The growth rate of e-commerce volumes will depend primarily on the level of solvency of the central mass of consumers.

REFERENCES

Arsalan Nazir, M., & Saleem Khan, R. (2023). Dynamic contextual factors, individual agency and adoption of e-commerce in SMEs. Journal of Organisational Studies and Innovation, 9(4), 1–23. https://doi.org/10.51659/josi.21.154

Berezovska, L., & Kyrychenko, A. (2022). Development of electronic commerce in Ukraine and the EU. Economy and Society, 42. https://doi.org/10.32782/2524-0072/2022-42-15

Berher, A., & Haleta, A. (2021). World tendencies of the electronic commerce development trends with crisis terms of Covid-19 pandemic. Economy and Society, 26. https://doi.org/10.32782/2524-0072/2021-26-18

Bulakh, E. (2023). Development of cyber security in electronic commerce under globalization. Scientific Notes of Lviv University of Business and Law, (37), 298-306.

Chikov, I., Khaietska, O., Yuliia, O., Titov, D., Prygotsky, V., & Nitsenko, V. (2023). Modeling of the Synthetic Indicator of Competitiveness of Agricultural Enterprises: a Methodological Approach to the Use of Neural Network Tools. Financial and Credit Activity Problems of Theory and Practice, 5(52), 222–242. https://doi.org/10.55643/fcaptp.5.52.2023.4149

Deloitte in Ukraine (2022). How Ukrainian retail has changed in 2021: a pre-war Deloitte study in Ukraine. https://www2.deloitte.com/ua/uk/pages/press-room/press-release/2022/ukrainians-pre-war-consumer-sentiment.html

Dubel, M., & Barvinchenko, O. (2023). Features of the development of electronic commerce in Ukraine during war. Entrepreneurship and Innovation, (27), 16-22. https://doi.org/10.32782/2415-3583/27.2

Global24. (2023). Online sales: Ukraine ecommerce 2023 Analysis. https://global24.com/en/blog/online-sales-ukraine-ecommerce-2023-analysis

Górka-Chowaniec, A. K., & Sikora, T. (2023). Determinants for food service market segmentation and contemporary consumers' behaviours amid the Covid-19 pandemic. British Food Journal (Croydon, England), 125(5), 1782–1804. https://doi.org/10.1108/bfj-03-2022-0230

Gustera, O., & Timofeev, I. (2020). Features of risk assessment in e-business and internet projects. Ekonomika ta Derzhava, 5, 171–174. https://doi.org/10.32702/2306-6806.2020.5.171

Hlinenko, L.K., & Daynovskyy, Y.A. (2018). State-of art and prospects of development of Ukrainian electronic commerce. Marketing and Management of Innovations, 1, 83–102. https://doi.org/10.21272/mmi.2018.1-06

Ilchuk, M., Kyrychenko, A., & Vodnitskyi, M. (2023). Development of e-Commerce in Ukraine in the War and Post-War Conditions. Science and Innovation, 19(3), 3–14. https://doi.org/10.15407/scine19.03.003

Kalkha, H., Khiat, A., Bahnasse, A., & Ouajji, H. (2023). The rising trends of smart E-commerce logistics. IEEE Access: Practical Innovations, Open Solutions, 11, 33839–33857. https://doi.org/10.1109/access.2023.3252566

Kharchenko, O., & Yaremych, V. (2023). Model of implementation of electronic commerce technologies. Cyber security: education, science, technology, 2(22), 204–213. https://doi.org/10.28925/2663-4023.2023.22.2042013

Korolchuk, M., Korolchuk, V., Myronets, S., Boltivets, S., Mostova, I., & Koval, V. (2021). Competitive Properties of Trading Companies Managers. Revista Geintec-Gestao Inovacao e Tecnologias, 11(2), 941-954.

Kozytska, H. V. (2021). Development of international electronic trade in the conditions of digitalization of the economy. Economic Bulletin, 2, 103-114. https://doi.org/10.33271/ebdut/74.103

Kublitska, O. (2023). Electronic commerce market in Ukraine: current state and trends of post-war recovery. Problems and Prospects of Economics and Management, 3 (35), 98–108. http://ppeu.stu.cn.ua/article/view/293162

Kurniawati, E., Al Siddiq, I. H., & Idris, I. (2020). E-commerce opportunities in the 4.0 era innovative entrepreneurship management development. Polish Journal of Management Studies, 21(1), 199–210. https://doi.org/10.17512/pjms.2020.21.1.15

Lakiza, V., & Bala, R. (2020). Peculiarities of usage of electronic commerce by business entities in conditions of international economic activity. Efficient economy, 11. https://doi.org/10.32702/2307-2105-2020.11.53

Mainka, M. K., Melnichenko, O., Tsybrovskyi, A., Sidielnikov, D., Nitsenko, V., & Zakharin, S. (2023). Strategies of Socially Responsible Marketing of Companies in the Sphere of Sports. Financial and Credit Activity Problems of Theory and Practice, 2(49), 435–444. https://doi.org/10.55643/fcaptp.2.49.2023.3988

Malyuta, I. A., & Ogol, A. E. (2019). Analysis of the current state and prospects of internet commerce development in Ukraine. Efektyvna Ekonomika, 1. https://doi.org/10.32702/2307-2105-2019.1.49

Mostova, A., & Shaikhutdinova, E. (2023). Development prospects of Ukrainian online stores on the European market. Eastern Europe: Economy, Business and Management, 3 (40), 53-60. https://doi.org/10.32782/easterneurope.40-8

Novikova, N., Diachenko, O., & Honcharenko, O. (2023). Digital platforms as a driver of economic development.·Scientia·Fructuosa, 150(4), 47–66. https://doi.org/10.31617/1.2023(150)04

Romaniuk, P. (2023). Main problems of electronic commerce in the conditions of digital business transformation. Digital Economy and Economic Security, 4(04), 32-37. https://doi.org/10.32782/dees.4-6

Singh, M., & Waddell, D. E. (2004). Business Innovatin and Change Management. In book: Singh, M. (Eds), E-Business Innovation and Change Management. IRM Press, London (pp. 1–18). https://doi.org/10.4018/978-1-59140-138-4.ch001

Statista. (2024). eCommerce – Ukraine. https://www.statista.com/outlook/emo/ecommerce/ukraine

Syniavska, O. (2019). Electronic trade in Ukraine: trends and prospects for development. The Journal of V.N. Karazin Kharkiv National University, 9, 126-132. https://doi.org/10.26565/2310-9513-2019-9-16.

Verbivska, L., Zhuk, O., Ievsieieva, O., Kuchmiiova, T., & Saienko, V. (2023). The role of e-commerce in stimulating innovative business development in the conditions of European integration. Financial and Credit Activity Problems of Theory and Practice, 3(50), 330–340. https://doi.org/10.55643/fcaptp.3.50.2023.3930.

Volynchuk, Y., Kovalchuk, N., & Kulyk, Y. (2020). Electronic interaction in key sectors of electronic commerce, Economic Sciences, 17, 39–49. http://e-region.lutsk-ntu.com.ua/index.php/ekonomichni_nauky/article/view/54/54.

Wang, J., Cai, S., Xie, Q., & Chen, L. (2022). The influence of community engagement on seller opportunistic behaviors in e-commerce platform. Electronic Commerce Research, 22(4), 1377–1405. https://doi.org/10.1007/s10660-021-09469-w

Webpromo. (2023). E-Export with Ukrposhta: a guide to starting a business on the international marketplace. https://web-promo.ua/ua/blog/e-export-z-ukrposhtoyu-gajd-po-zapusku-biznesu-na-mizhnarodnomu-marketplejsi.

Yatsenko, O. M., Hriazina, A. S., & Shevchyk, O. O. (2019). E-commerce as an element of the global trade system. Actual problems of economics, 8(218), 4–15.

Zayats, O., & Kapko, Y. (2023). Analysis of global trends in e-commerce development. Economy and Society, (55). https://doi.org/10.32782/2524-0072/2023-55-65

Zhao, Y., Zhou, Y., & Deng, W. (2020). Innovation mode and optimization strategy of B2C E-commerce logistics distribution under big data. Sustainability, 12(8), 3381. https://doi.org/10.3390/su12083381

Zharnikova, V. (2019). Global trends and modern realities development of retail trade in the digital economy. Efektyvna Ekonomika, 5. https://doi.org/10.32702/2307-2105-2019.5.151

Zosimov, V., & Berko, O. (2018). Problems and prospects for development of electronic trade in Ukraine. Geometric modeling and information technologies, 1 (5), 51-57.