

Digital Business Ecosystem as a Factor of Ensuring Business Competitiveness

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Abstract

The relevance of studying the issues of digital business ecosystem to ensure business competitiveness is related to the current conditions of global competition, under which companies are faced with the constant need to quickly adapt to changes in the market environment. At the same time, digital technologies and e-commerce have become key determinants of business success, determining its competitiveness and ability to survive in the market under conditions of high uncertainty and threats. The article substantiates the use of a systemic approach to the study of digital business ecosystem, which makes it possible not only to comprehensively and thoroughly investigate complex objects such as dynamic systems, but also to substantiate management decisions regarding the use of digital marketing and e-commerce to ensure business competitiveness. The authors conducted a thorough analysis of publications on this topic, and also analyzed a large array of statistical data on the use of digital marketing and e-commerce in the countries of the world, as well as forecast data on the increase in the impact of these processes on business development. The factors inhibiting the use of digital marketing and e-commerce in Ukrainian companies are singled out. The key advantages of using digital marketing and e-commerce to ensure business competitiveness are clarified, as well as the advantages of integrating such tools to ensure business competitiveness. Reasonable feasibility of integrated application of key tools of digital marketing and e-commerce to ensure business competitiveness.

Keywords: Digital Marketing, E-Commerce, Competitiveness, Digital Business, Ecosystem, Entrepreneurship, Digitalization, Digital Technologies.

Introduction

Modern business is faced with intense challenges of globalization, technological changes and growing digitalization of the economy. One of the key factors in the successful operation of enterprises is the ability to effectively adapt to new market conditions, using digital marketing and e-commerce tools, which not only open up new opportunities for development, but also significantly change the rules of competition in many industries. Given the rapid growth of online commerce and the

increasing importance of digital channels for interaction with customers, traditional business models are losing their effectiveness. Businesses that do not integrate digital tools into their strategies risk losing market positions due to insufficient speed of reaction to changes in consumer behavior and market conditions. At the same time, those companies that actively implement digital marketing and e-commerce gain a competitive advantage through faster adaptation, cost optimization and access to a wider audience. However, the implementation of digital tools requires not only technical investments, but also a deep understanding of how to effectively use data for making business decisions, forming personalized offers for consumers and increasing their loyalty. In addition, insufficient attention to data protection and cyber security can lead to a loss of consumer trust and reputational damage. Therefore, taking into account all of the above, there is a need for further research into the issue of ensuring business competitiveness in the context of the development of digital marketing and e-commerce.

The purpose of the article is a study of the specifics of the impact of digital marketing and e-commerce on ensuring business competitiveness, this led to the identification and solution of the following problems:

- the need to continue scientific research based on the analysis of scientific research on digital marketing and e-commerce as a determinant of ensuring business competitiveness is outlined;
- the expediency of using a system approach in researching the use of digital marketing and e-commerce to ensure business competitiveness is substantiated;
- analyzed statistical data and forecasts regarding the further development of digital marketing and e-commerce in the world and European countries;
- the factors inhibiting the use of digital marketing and e-commerce in Ukrainian companies are singled out;
- the key advantages of using digital marketing and e-commerce to ensure business competitiveness are clarified, as well as the advantages of integrating such tools to ensure business competitiveness;

- justified feasibility of integrated application of key tools of digital marketing and e-commerce to ensure business competitiveness.

Literature review

The problems of the development of digital business ecosystem, the assessment of their impact on business are reflected in the works of many scientists. The authors (Hong Y. et al., 2024) investigate the specifics of using an e-commerce platform to identify and implement market opportunities. Within the framework of the study (Al-Dwairi Radwan Moh'd et al., 2024), the authors developed an innovative structure that emphasizes various factors that enhance the effectiveness of social networks and emphasizes the psychological state of customers.

Scientists (Salah Omar Hasan et al., 2024; Popelo O. et al., 2022; Abramova A. et al., 2021; Grigoras-Irchim C.E. et al., 2018; Zhavoronok A. et al., 2022) analyze the factors driving the adoption of e-commerce and the impact on the effectiveness of marketing in SMEs. The authors are confident that the integration of artificial intelligence, responsiveness to customers, innovative culture, competitive pressure and pressure from business partners have a positive effect on the implementation of e-commerce. Paper (Rana Nirbhay, 2024) explores the dynamic interplay between the ethical integration of artificial intelligence and marketing strategies in the context of sustainable fashion design for e-commerce. The importance of ethical considerations in the deployment of artificial intelligence is proven, taking into account the bias of algorithms, data privacy and human-artificial intelligence interaction.

The aim of article (Theofanous Giannis et al., 2024) is to explore the digital sustainability and inclusiveness of tourism and analyze the role of tourism e-commerce platforms in promoting a barrier-free digital environment for people with disabilities and creating a more inclusive and sustainable online marketing landscape. Scientific work (Zozaya Durazo et al., 2024) proved that e-commerce has become one of the most convenient shopping options for consumers and influencers play a significant role in its success. The authors are convinced that this strategy allows

brands to interact with potential consumers through different formats and channels.

The authors (Velasco Marienel et al., 2024) consider it necessary to develop and implement e-commerce platforms adapted to the unique requirements of both farmers and consumers. The platform, developed by scientists, aims to promote agricultural products and facilitate consumer access to high-quality locally produced goods. Scientists (Meizhi Tang et al., 2024; Ivanova N. et al., 2022) proposed a marketing strategy for different groups and evaluated the effects of the implementation of the strategy. The authors proved that the implementation of a strategy based on a clear marketing strategy and user profiles significantly increased the store's sales, proving the effectiveness of a precise marketing strategy.

A study (Zhang Henan, 2024) claims that an eye-to-eye marketing system for cross-border e-commerce was created using data mining technology, and data analysis and user profiling were used to develop the system. The authors of the article performed a requirements analysis to determine the needs and expectations of e-commerce stakeholders before developing an accurate marketing management system. Scientists (Xu Yingzi et al., 2024) analyzed the features of using blockchain technology in e-commerce marketing methods within the supply chain of agricultural products.

Research findings (Banerji R. et al., 2024) demonstrate that SMMA has a significant impact on perceived value, which affects customer satisfaction, therefore, e-commerce companies should create social media marketing strategies such as convenient and user-friendly ways of interacting that affect the perceived value of social media users and lead to customer satisfaction. The authors (Liu Qian et al., 2024) believe that competition in e-commerce is intensifying, and providing personalized and accurate shopping recommendations is becoming a key strategy for e-commerce platforms seeking to effectively engage users.

The primary objective of the study (Yousaf, Zahid et al., 2024) is to examine the relationships that already exist between customer engagement, e-commerce marketing capabilities, and effective strategic performance. The authors of the study (Gupta Chandra Prakash et al., 2024)

analyzed the features of the use of artificial intelligence in electronic commerce and proved that it leads to the transformation of marketing, personalization and customer service.

Scholars (Hassim Affendy Abu et al., 2024) investigate the impact of perceived marketing activity in social networks on the customer's intention to make a purchase through brand awareness in an online context. The authors (Luo Yangxue, 2024; Vovk O. et al., 2021) developed a strategy for precision marketing and management of cross-border e-commerce based on big data technology.

However, due to the rapid development of technologies and changing consumer preferences, businesses are faced with the need to adapt to new conditions, which requires a deep understanding of the mechanisms that underlie effective digital marketing and e-commerce. Further research of the specified problem will allow to reveal the best practices, innovative approaches and strategies that will contribute to the increase of competitiveness.

Methodology

To study digital marketing and e-commerce as a factor of ensuring business competitiveness, in the opinion of the authors, it is advisable to use a systemic approach. The system approach provides an opportunity to simultaneously investigate multifaceted processes and phenomena of both the system and the influence of multi-vector processes of external nature on it, which ensure stability or bifurcation of the system due to fluctuations.

Using a systematic approach to digital marketing and e-commerce research makes it possible to:

- direct the specified toolkit to achieve the general goal of ensuring business competitiveness;
- combine various elements of the components of a multifaceted system;
- establish relationships between processes and elements of the system as a whole;
- to ensure the integration of the system with a high level of organization, which makes it possible to obtain a synergistic effect for the development of the system and its competitiveness;

- to achieve awareness of the system as one of the main prerequisites for ensuring competitiveness;
- to obtain a result from interaction in the system greater than the sum of individual results as a result of using digital marketing and e-commerce as a factor to ensure business competitiveness.

The system approach as a methodology for the study of complex objects such as dynamic systems provides an opportunity not only to investigate, but also to substantiate management decisions regarding the use of digital marketing and e-commerce to ensure business competitiveness.

Key tools of digital marketing and e-commerce in the context of ensuring business competitiveness can be presented in the form of functionalities, which provides a general overview and makes it possible to obtain a synergistic effect from the set of key tools of digital marketing and e-commerce. Functionalities (F(K)) of the outlined tools have the following form of a recurrent relationship:

$$F(K) = \begin{cases} FK_{ect} = \sum_n^i \begin{cases} f(Eie) \\ f(Ecm) \\ f(Em) \\ f(Emr) \\ f(Eb) \end{cases} \\ FK_{dmt} = \sum_n^i \begin{cases} f(Cm) \\ f(Seo) \\ f(Sem) \\ f(Smm) \\ f(Aim) \\ f(Emm) \end{cases} \end{cases} \quad (1)$$

Where FKect – sum of functionalities of key e-commerce tools (from i to n = 5);

FKect – sum of functionalities of key digital marketing tools (from i to n = 6);

f(Eie) – electronic information exchange functionality;

f(Ecm) – electronic capital movement functionality;

f(Em) – electronic money functionality;

f(Emr) – electronic marketing functionality;

f(Eb) – electronic banking functionality;

f(Cm) – content marketing functionality;

f(Seo) – search engine optimization functionality;

f(Sem) – search engine marketing functionality;

f(Smm) – social media marketing functionality;

f(Aim) – affiliate and influencer marketing functionality;

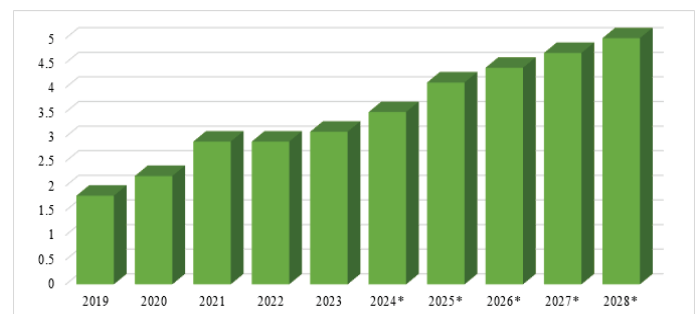
f(Emm) – electronic and mobile marketing functionality.

This presentation of key digital marketing and e-commerce tools in the context of ensuring business competitiveness makes it possible to practically assess the contribution of a particular functionality to ensuring business competitiveness, and the complex of functionalities in the form of a given recurrent relationship in the form of a system makes it possible to obtain the emergence effect, according to which the functioning of a holistic system of functionalities gives a result greater than the sum of its individual components.

Results

At the current stage of development, digital marketing and e-commerce are key factors that contribute to business competitiveness in the modern market. The successful integration of digital tools allows enterprises not only to effectively interact with consumers, but also to increase their revenues through the expansion of markets and optimization of business processes. Current statistical information emphasizes the significant growth potential of both directions. By 2028, e-commerce market revenue is expected to reach \$5,026 billion, up from \$3,099 billion in 2023, showing growth of 10.15% (Fig. 1). These trends confirm the importance of digital strategies for long-term success and strengthening business positions in the global market and ensuring business competitiveness.

Figure 1. Trends in e-commerce market revenue changes, billion USD



*forecast data Source: [10]

Digital marketing and e-commerce have become widespread in economically developed countries, while in Ukraine their development faces a number of serious restrictions that slow down the implementation of these technologies and reduce their effectiveness in increasing business competitiveness. The main obstacles include:

- the general state of the economy - economic instability in Ukraine creates additional risks for investments in digital marketing technologies and the development of e-commerce; the low level of economic growth and the purchasing power of the population limit the potential demand for online services and goods, which reduces the profitability of investments in these sectors;
- the underdevelopment of the market - the lack of an appropriate level of competition and underdeveloped distribution channels for goods and services limit the opportunities for businesses to use digital channels and e-commerce;
- information opacity of the market - the lack of reliable and complete data on the standard of living, purchasing behavior of the population and general market indicators is a serious barrier for planning marketing strategies. The disparity and incompleteness of data make it difficult to analyze market trends and determine the exact directions of development of digital initiatives;
- financial and organizational constraints - many Ukrainian companies face a lack of financial resources for investments in digital marketing tools and the development of e-commerce, which limits their ability to implement new technologies;
- lack of qualified personnel - one of the key problems is the lack of digital marketing and information technology specialists who have the necessary knowledge to effectively implement new solutions, which slows down the development of the sector and limits the ability of companies to use modern digital tools to achieve business goals;
- untimely response to market changes - domestic companies do not always respond in time to external influences and market changes, which reduces their

adaptability to new conditions and limits the ability to effectively use digital marketing and e-commerce opportunities, reducing their competitiveness on the global market;

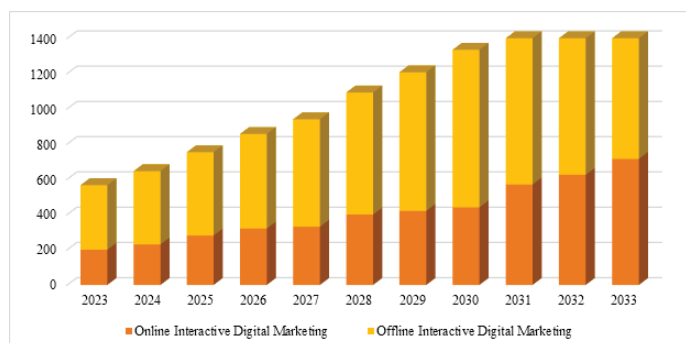
- full-scale invasion – war creates additional challenges that complicate the implementation of digital strategies and limit increased competitiveness in a global environment.

However, in contrast to this, the following key advantages of using digital marketing in modern conditions can be highlighted:

- the possibility of detailed analysis of changes in the "digital portrait", in particular through the study of its purchasing behavior, digital footprints on the Internet, as well as socio-demographic data from social networks;
- facilitating the process of analyzing competitors with the help of digital tools that allow you to effectively research websites, Internet activity, pages and publications in social networks;
- the possibility of increasing the conversion rate when promoting goods due to the growing demand for online products;
- creation of adapted products that meet modern challenges through the use of digital technologies;
- the possibility of forming a dynamic price strategy for goods and services through the analysis of a large number of online offers and the introduction of online payments through modern payment services.

According to statistical data (Fig. 2), the global digital marketing market is developing rapidly and, according to forecasts, in 2033 it will amount to about 1.3 trillion USD. Looking at the dynamics of the indicators, the positive dynamics of the indicated indicator are followed, namely: 2023 - 366.1 trillion USD, 2024 - 415.9 trillion USD, and forecast values for 2025 - 472.5 trillion USD, 2026 - 536.7 trillion USD, 2027 - 609.7 trillion USD, 2028-692.6 trillion USD, 2029- 786.8 trillion USD, 2030 - 893.8 trillion USD, 2031-1015.4 trillion USD, 2032 - 1153.5 trillion USD, 2033-1310.3 trillion USD. So, in 10 years, the growth rate of the digital marketing market is predicted to increase by more than 3 times.

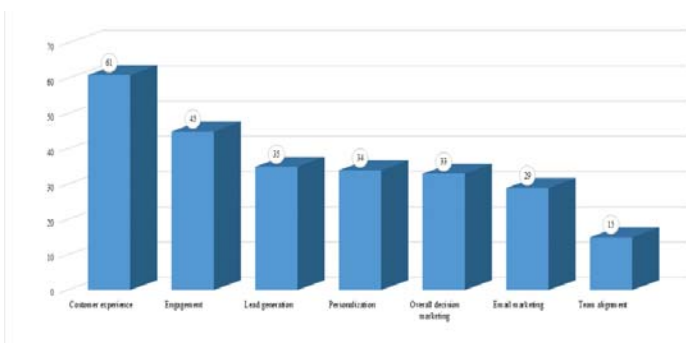
Figure 2. Current trends and forecast values of the global digital marketing market, trillion USD



Source: <https://www.hostinger.in/tutorials/digital-marketing-statistics>

The following directions demonstrate the greatest involvement in the use of digital technologies in marketing: 61% had a positive experience working with clients, 45% noted involvement, 35% focused on the possibility of attracting potential customers, 34% paid attention to personalization and 33% on the expediency of use in adoption processes solutions (Fig.3).

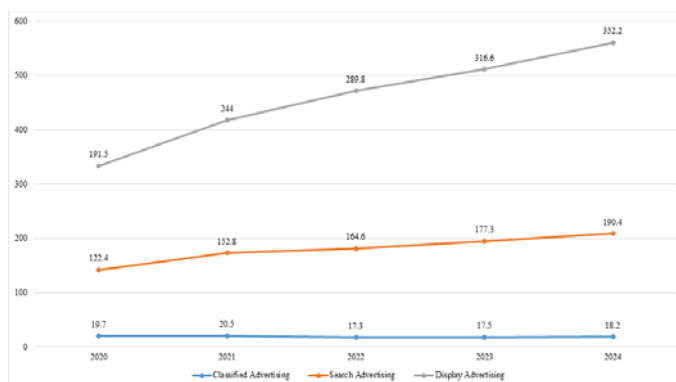
Figure 3. Benefits of improving marketing data quality, %



Source: <https://www.hostinger.in/tutorials/digital-marketing-statistics>

Taking into account the analysis of statistical data, in 2024 the expenditure of display advertising amounted to 352.3 million USD, while search advertising accounted for 190.5 million USD, the smallest expenses came from classified advertising, which amounted to about 18 million USD. For comparison, in 2020, spending on display advertising amounted to 191.5 million USD, search advertising - 122.4 million USD, classified advertising - 19.7 million USD (Fig. 4).

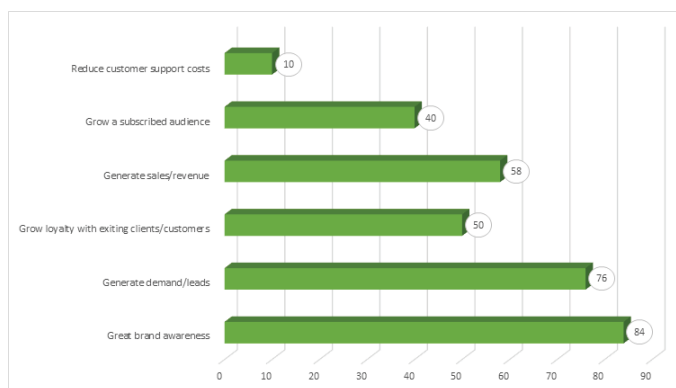
Figure 4. Internet advertising spending, 2020-2024, million USD



Source: <https://www.hostinger.in/tutorials/digital-marketing-statistics>

Figure 5 shows the main marketing goals, the achievement of which was facilitated by the use of content marketing, namely, 84% of respondents noted that the brand recognition indicator increased significantly, 76% - success in demand indicators, 58% - promotion of sales indicators, 50% - improvement of loyalty customers, 40% - increase in the list of subscribers, 10% - decrease in expenses for maintaining the customer base.

Figure 5. Top goals that content marketing helps to achieve among B2B markets, %



Source: <https://www.hostinger.in/tutorials/digital-marketing-statistics>

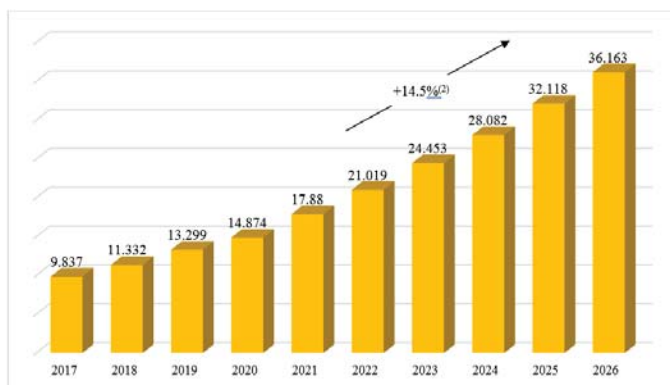
As for e-commerce, its scale is constantly growing, and along with it, the capitalization of enterprises working in this field is also increasing. Such successes can be explained by the numerous advantages of e-commerce for consumers, among which it is worth highlighting:

- permanent access to online stores at any hour of the day;
- the ability to get detailed information about the product, its characteristics and cost, as well as quickly compare different options;
- access to a much larger assortment of goods than in traditional stores, etc.

Combined with digital marketing tools, these benefits significantly increase business competitiveness.

Global B2B e-commerce shows positive dynamics and is gaining more and more development momentum in the world: 2017 - 9.837 billion USD, 2018 - 11.332 billion USD, 2019 - 13.299 billion USD, 2020 - 14.874 billion USD, 2021 - 17.880 billion USD, 2022 - 21.019 billion USD, 2023 - 24.453 billion USD, 2024 - 28.082 billion USD, and the forecast values for 2025 and 2026 are 32.118 billion USD and 36.163 billion USD, respectively (Fig. 6). Therefore, in 10 years, the Global B2B e-commerce indicator is predicted to grow by more than 3.5 times.

Figure 6. Global B2B e-commerce, billion USD

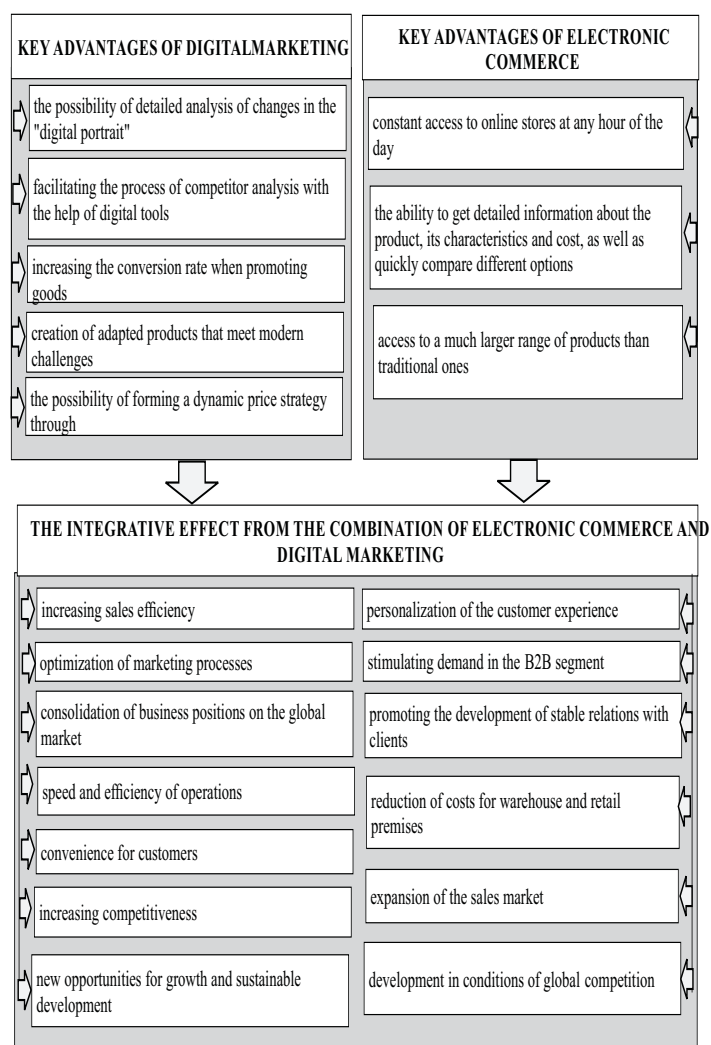


In this context, the integration of e-commerce and digital marketing (Fig. 7) is important, which not only increases sales efficiency and promotes the development of stable relations with customers, strengthening business positions in the global market, but also provides the following opportunities:

- personalization of customer experience – thanks to a detailed analysis of the target audience, companies can adapt their offers for each channel, creating a single and holistic view of the needs of each consumer;

- optimization of marketing processes - transparency of all stages of marketing activity allows integration of the work of marketing and sales departments, making informed decisions based on the received data, which, in turn, contributes to increasing the return on investment;
- stimulating demand in the B2B segment - effective strategies for attracting potential customers allow marketing specialists to improve conversion rates and increase sales volumes, which ultimately helps to strengthen business competitiveness in the market.

Figure 7. Key benefits and integration effect of digital marketing and e-commerce to ensure business competitiveness



Source: constructed by the authors

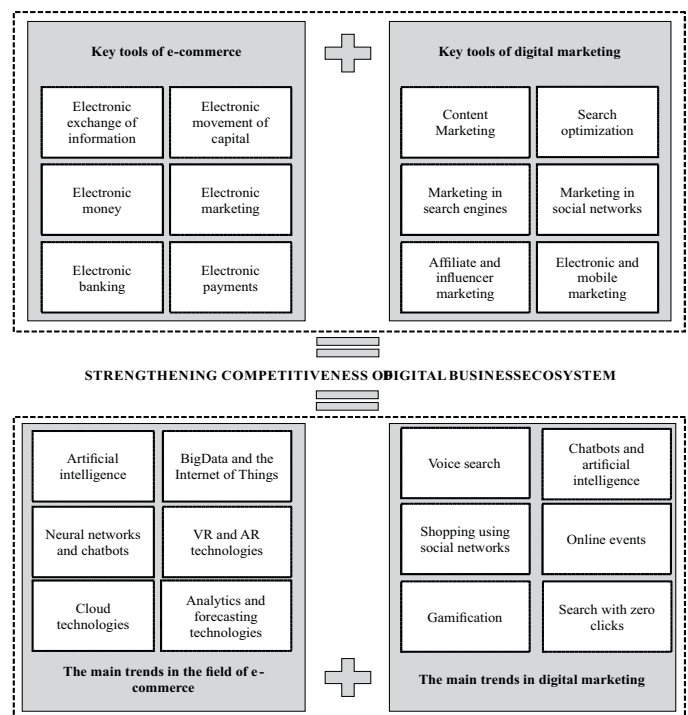
Accordingly, thanks to the rapid development of technologies, enterprises have access to tools that allow not only to interact more effectively with customers, but also to expand sales markets, increase conversion and optimize processes. In the modern digital environment, various types of digital marketing are successfully used:

- content marketing focuses on creating informative content, such as blogs, videos and educational materials, to help engage your audience, answer their questions and convert leads into customers. It is important to regularly publish quality content that matches the interests of the audience to ensure the effectiveness of the strategy;
- search engine optimization (SEO) is a strategy that helps increase the visibility of a website in the results of search engines such as Google. Proper optimization of content allows you to attract more organic traffic and improve positions in search results, which is key to increasing business competitiveness;
- Search engine marketing (SEM) is based on paid advertising that appears at the top of search results. Payment is made for the number of clicks, which makes this method effective for attracting customers;
- social media marketing (SMM) allows companies to promote their products through social networks such as Facebook, Instagram, etc., using advertisements or creating profiles to attract a target audience;
- affiliate marketing involves cooperation with partners who help to increase the reach of the target audience, and payment is made only for the achieved results, for example, sales or attracting new customers;
- mobile marketing consists in adapting processes for mobile devices, which is mandatory for effective communication with customers. The use of SMS, push notifications and mobile applications allows businesses to be closer to their customers;
- video marketing is one of the most effective tools for attracting customers. More than 80% of users turn to video for product reviews, which influences their purchase decision;
- email marketing remains an important tool for maintaining contact with customers through newsletters

about promotions, new products or special offers, etc. The effectiveness of digital marketing also increases due to the application of an omnichannel approach that combines several channels of interaction with customers, stimulating greater reaching the target audience.

Thus, in modern conditions, the successful development of companies largely depends on the use of innovative tools of e-commerce and digital marketing, which not only simplify the processes of exchanging information and financial resources, but also open up new opportunities for attracting and retaining customers (Fig. 8). Electronic exchange of information, electronic movement of capital and electronic banking create the foundations for effective business management, while electronic marketing, content marketing, search engine optimization and mobile marketing are becoming critical to increase brand awareness and attract target audiences. In the conditions of a rapidly changing market, these tools become key factors that ensure business competitiveness, contributing not only to the growth of sales, but also to the formation of a positive image of companies in the digital environment.

Figure 8. Key tools of digital business ecosystem in the context of ensuring business competitiveness



Source: developed by the authors

Based on the above, we see that digital marketing and e-commerce have become integral components of a successful business development strategy. They provide companies with the opportunity to effectively interact with consumers, adapt to their needs and preferences, as well as promptly respond to changes in the market situation. With digital marketing tools such as content marketing, SEO, SMM and email, you can create targeted communication campaigns that increase customer engagement and loyalty. In turn, e-commerce allows expanding the sales market, reducing the costs of maintaining physical retail outlets, and providing round-the-clock access to goods and services. Thus, the strategic use of digital marketing and e-commerce is critical to enhancing business competitiveness, allowing businesses to not only survive but also thrive in a dynamic environment.

Conclusion

The scientific novelty of the study consists in the justification, using the methodology of the system approach of complex objects, which includes dynamic systems, the effectiveness of using digital marketing and e-commerce as a factor in ensuring business competitiveness, which involves taking into account the key advantages of digital marketing and e-business, which will contribute to ensuring the integration effect of their combination to ensure business competitiveness.

The specified integration factors will contribute to ensuring competitiveness and leveling the negative factors of the development of companies, which, on the example of Ukraine, should include: the unsatisfactory state of the economy in the country, the underdevelopment of the market, low information transparency of the market, financial and organizational limitations, the lack of qualified personnel, untimely response to market changes, and also, a special factor of the realities of Ukrainian development, determined by a full-scale invasion of its territory.

Digital marketing and e-commerce have become important elements of ensuring business competitiveness in modern conditions. In addition, the ability to make personalized offers and quickly respond to changes in consumer trends allows businesses to be more adaptive and dynamic.

Another important aspect is that digital marketing and e-commerce provide deep analysis of consumer behavior. Thanks to the use of analytical tools, companies can track preferences, trends and changes in the purchasing behavior of customers, which allows to optimize marketing campaigns, increase conversions and reduce advertising costs and more. In general, the development of digital marketing and e-commerce are strategic factors for the success of modern business. In the conditions of global competition, businesses that actively invest in these areas gain competitive advantages, maintain flexibility and the ability to innovate, which is key to long-term and sustainable growth.

Questions related to the justification of the methodical approach to the selection of the most effective digital marketing and e-commerce tools for the company's activities, depending on the main features of its activity, require further research.

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