

DISTRIBUTION OF DIGITAL SERVICES AND TECHNOLOGIES IN THE FORMAT OF E-COMMERCE IN SOLVING PROBLEMS OF SUSTAINABLE DEVELOPMENT

Irina Tretyakova¹, Tatiana Kolmykova¹, Nadezhda Serebryakova²,
Elena Astapenko³, Anastasia Malashchenko¹

¹Southwest State University, Kursk, RUSSIA

²Voronezh State University of Engineering Technologies, Voronezh, RUSSIA

³Yugra State University, Khanty-Mansiysk, RUSSIA

iren_sin@list.ru

t_kolmykova@mail.ru

nad.serebryakova@mail.ru

fedorov-elena@yandex.ru

kgtu_fk@list.ru

Abstract

E-commerce is a significant trend in the context of digitalization. Digital e-commerce services are spreading not only on an individual territorial scale, but also on a global economic scale. The transformation, improvement and expansion of commerce into a digital format are associated with the active digitalization of the economic landscape and global geopolitical processes. E-commerce is a significant trend that is developing thanks to digital services and technologies. While digital technologies can contribute to achieving sustainable development goals, their implementation requires consideration of social and environmental aspects. This article examines the development of e-commerce and outlines a range of associated issues. It concludes that improving the efficiency of e-commerce depends on the business model and strategic goal of the company.

Keywords: digital services and technologies, digitalization, e-commerce, sustainable development

I. Introduction

Digital services and technologies are rapidly evolving, creating new conditions for doing business and achieving sustainable development. This leads to the emergence of new markets based on the creation and distribution of products and services in digital formats. Digital services and technologies are applied across many spheres of society and business. Digitalization contributes to the growth of business process efficiency, reduction of environmental and social risks [1].

Along with the advantages that digital services and technologies have, their distribution is associated with new challenges and threats that they pose for the sustainable development of society and business [2]. Digital technologies can contribute to the achievement of sustainable development goals, but their implementation requires taking into account social and environmental aspects [3]. Therefore, the study of directions and issues in the development of digital services and technologies is a pressing task.

E-commerce is one of the significant trends driven by digital services and technologies. E-commerce can contribute to sustainability by implementing green logistics and optimizing resources to reduce negative environmental impacts. E-commerce also provides opportunities to increase supply chain transparency and improve access to eco-friendly products. This allows consumers to make more informed choices, supporting companies that adhere to sustainability and social responsibility. In addition, the use of technologies such as artificial intelligence and blockchain can help track and manage the environmental aspects of a business. This allows companies to manage resources more efficiently and minimize waste.

Initially, scientists interpreted the concept of "e-commerce" as a specific method enabling commercial transactions using information and communication technologies. This approach to defining the nature of e-commerce has been supported by researchers such as R. Amit, C. Zott [4], S. Mohapatra [5], J. G. Van der Vorst [6], J. Zhao [7] and others.

According to A.J. Cullen and co-authors [8], as well as V. Jain and co-authors [9], this definition could only characterize e-commerce during its early stages, when Internet trade was seen as a sales channel for sellers also engaged in traditional (offline) commerce. In other words, it is a narrower approach that equates e-commerce with the process of Internet trading. This means e-commerce refers to selling goods to customers attracted via the Internet, a functionality closely related to the concept of Internet marketing.

Currently, e-commerce is no longer a separate business process within the traditional process of buying and selling. Due to the development of digital technologies and their active implementation, it has become an independent activity.

N. Ivanova and co-authors [10], G. Taher [11] equate the concepts of e-commerce and e-business, viewing them as any revenue-generating activities organized through the Internet and other electronic communication means.

Z. Kedah [12] consider e-commerce and e-business as independent phenomena, arguing that the concepts of "commerce," "business," and "trade" have different meanings and are merely overlapping categories. The definition of e-commerce as part of e-business is supported by authors such as R.D. Smith [13], J. M. Santos-Jaén and co-authors [14], I. Tretyakova and co-authors [15-30]. These authors define e-commerce as electronic trade within consumer and corporate segments. They identify Internet services, Internet media, and software development as part of the e-commerce structure. They emphasize that electronic trade is an integral part of e-commerce, which in turn is an element of e-business.

Summarizing existing approaches, we propose a hierarchy of the terms "electronic trade," "e-commerce," and "e-business." We believe e-commerce can be viewed as an independently functioning sector of the economy. It is based on financial and trade transactions conducted via computer networks and includes business processes related to such transactions. E-commerce refers to activities aimed at buying and selling goods, works, and services using electronic means.

The problem of achieving sustainable growth actualizes the need for research on digital services and technologies. In particular, the relevance of research on the spread of e-commerce in the context of digitalization is growing.

II. Results

E-commerce expands business development opportunities and improves the efficiency of business processes. However, e-commerce is also a segment where digital fraud is most active. Particularly after the onset of the COVID-19 pandemic, the intensity of DDoS attacks has significantly increased. In such attacks, the perpetrator generates a large volume of malicious requests to a web application from various sources [16]. As a result, these requests either completely saturate the communication channel capacities or cause a sudden spike in server load, leading to reduced availability of the targeted resource or its complete unavailability (denial of service).

DDoS attacks cause significant damage to e-commerce websites in the form of lost revenue. During an attack, customers cannot place their orders while the site is down. Companies also incur reputational losses, as the inaccessibility of online stores frustrates customers and leads to customer attrition. Frequently, DDoS attacks serve as a distraction; while IT staff are preoccupied with mitigating the attack, attackers attempt to carry out other actions, such as penetrating the company's information systems.

According to estimates, the global losses incurred by e-commerce businesses due to online payment fraud amounted to \$48 billion in 2023 [17].

Economic losses due to fraudulent activities involving online payments increased by 1.3 times between 2021 and 2023. It is worth noting that the region with the highest revenue losses in e-commerce due to payment fraud is Latin America.

The most significant increase in online payment fraud is observed in the "Food Products" category – 37%, followed by everyday goods – 36%, the "Beauty and Health" category – 34%, and electronics and fashion industries – 32% [18].

In the context of rising fraudulent activities in global e-commerce, friendly fraud holds a special place. Analysts note that one out of every ten thefts is committed not by strangers, but by relatives or people from the close circle of the victim. Funds spent without the cardholder's knowledge to pay for an order are presumed to be refundable only upon a bank's claim and verification of the transaction's occurrence by third parties. Currently, the highest level of friendly fraud is observed in the "Food Products" category – 45%.

Account takeover fraud involves obtaining legitimate user data to take control of their online accounts or perform actions on behalf of their account in a retailer's personal account, which may lead to theft of funds or actions to withdraw account balances, place orders, etc. Account takeover can occur via an automated script that enters login data on a large scale or manually. The maximum level is also typical for the "Food Products" category – 50%.

Voucher, coupon, and discount abuse manifests as fraud involving the use of counterfeit coupons, promo codes, and manipulating discounts. The highest levels are seen in the "Food Products" category – 48% and "Clothing, Fashion" – 44%.

According to estimates of the Russian e-commerce market, more than 40% of online shoppers have encountered fraud. For buyers, the issue of ensuring the security of personal data is crucial. This is one of the factors that limits the development and penetration of e-commerce. Buyers are reluctant to use payment card information.

The problem of protecting e-commerce websites from viruses and hacks is also relevant in modern conditions. Website owners often underestimate their invisible opponent, assuming that the site does not hold any value for cybercriminals. It should be noted that most hacks are not just about stealing data or damaging the website template. Often, cybercriminals aim to use the site for spamming or creating a temporary repository for illegal files. Additionally, using hacked websites for botnets or for hidden cryptocurrency mining is also popular [19].

Developers, malware sellers, and hackers gain access to important information when they hack or infect a site with viruses, and may exploit the hosting resources.

In addition, owners of hacked websites face consequences such as: loss of databases, loss of control over the digital resource, content replacement, and the appearance of clones. The consequences of cybercrimes also manifest in:

- Financial loss;
- A significant reduction in traffic, directly caused by the loss of trust and the weakening of reputation;
- Imposition of sanctions by search engines: constant automated security monitoring of resources to detect viruses and prevent user device infections. If malicious components are found, a notice appears in the snippet stating that the site may pose a security threat to the user's computer. Visits to such a site are minimized, and eventually, it is removed from search results.

Thus, security issues in the digital environment are paramount for both sellers and buyers in modern conditions.

A significant problem in the Russian e-commerce market is the lack of trust from buyers towards online stores and the quality of the products offered. This distrust is driven by the increased risk of purchasing illegal goods.

There are problems related to the protection of intellectual property rights for goods or services sold via e-commerce. Such issues contribute to growing distrust among investors and potential buyers, which can negatively impact the growth rates of this digital business segment.

Among the problems, there are cases of selling illegal, including counterfeit and pirated, goods. The main tool aimed at minimizing illegal entrepreneurship on the Internet in Russia is the blocking of online stores by Roskomnadzor, in accordance with the decision of the regional court. However, this is not always effective. Blocked online stores often move to a new address and resume their illegal activities.

A problem is also the lack of necessary expertise within companies. This issue is common among many companies due to the shortage of highly qualified specialists in this field, such as managers with substantial practical experience in sales, logisticians, marketers, and customer service experts.

A significant barrier to the development of e-commerce is the difficulty of attracting potential buyers and retaining existing ones. Strong competition in the e-commerce segment motivates suppliers and manufacturers to create more attractive conditions, products, and services.

Online trading cannot rely solely on initial investments (such as the official registration of the trading platform, website design, etc.). To maintain the popularity of an online store, it is necessary to continuously increase the expenses associated with ensuring its uninterrupted operation. Therefore, financial issues are crucial.

The lack of knowledge about the benefits of e-commerce also remains a problematic area in the e-commerce segment. Companies that are not ready to implement new methods of promoting goods and services in the digital environment miss opportunities and benefits that could be gained by introducing online sales channels.

Although the average transaction size in e-commerce increases every year, the problem of low purchasing power remains. In modern conditions, the population tends to save, and the growth of real incomes is minimal. Overall, the increase in the average transaction size is not due to the intensive purchase of goods and services online, but to the rising prices of these goods and services.

Another important problem in e-commerce is the pressure exerted by cross-border and "gray" market players on legitimate Russian online retailers. Foreign online stores have rapidly gained market share in Russia. However, after the introduction of retaliatory sanctions by Russia, products and services from certain foreign online platforms became unavailable to Russian users. "Gray" market players currently operate freely in prohibited or conditionally prohibited segments, while legal players cannot enter the market.

In the current environment, the problem related to the difficulty of exporting Russian goods is particularly relevant. This is largely due to geopolitical circumstances and the harsh sanctions imposed on Russia by Anglo-Saxon countries and their allies. The growth of export costs and the need to overcome fierce competition in the global market also contribute to this issue.

In light of the above, the issue of creating a unified and effective practice for the regulation and taxation of the e-commerce sector becomes urgent. Typically, e-commerce cannot be regulated by norms that apply only within one country. Therefore, the need for extraterritorial regulation becomes evident. This regulation aims to control both domestic and cross-border online trade based on unified principles, regardless of jurisdiction [24-36].

III. Discussion

Despite a number of problems, e-commerce is currently characterized by stable growth. This has been largely facilitated by active digitalization, the COVID-19 pandemic, geopolitical factors, and changes in consumer preferences.

Most modern economists directly link the development trajectory of the e-commerce market to new technologies that are actively being implemented in this sector of the economy. The development of the services sector based on information and communication technologies is the most important and defining factor of e-commerce.

With the help of digital services and technologies, it is possible to algorithmize the relationship between business and the client. Modern technologies allow tracking the entire path of products: from their creation to sale, and then after-sales service [20].

We believe that new technologies will improve communication with consumers at all stages of online shopping, increase the average purchase amount, strengthen trust, and create safer conditions for cooperation.

For buyers, the following advantages are indisputable.

Products or services can be purchased at any time of the day. Technically, an online store operates daily and around the clock. Internet purchases are not tied to time, which is significant for the consumer and makes e-commerce attractive.

E-commerce saves time, as the buyer does not need to physically visit the store. Purchasing goods or services from home reduces transaction costs.

E-commerce helps reduce informational asymmetry. The consumer can study a product or service through previous reviews, other buyers' experiences.

Buyers can also compare prices for the same product on different platforms:

- Small businesses can compete on an equal footing with large ones;
- Continuous contact is established with buyers;
- Buyers are instantly informed about changes in the assortment and pricing policies;
- Regional players penetrate international markets;
- There are no costs for renting premises;
- Costs related to order processing are reduced;
- There are expanded opportunities for automating business processes;
- The business becomes customer-oriented.

IV. Conclusions

It can be said that e-commerce is the fastest-growing direction of the digital segment in business. It serves as one of the manifestations of the digital economy, characterized by mobility, innovative opportunities for industrial and business activity, changes in the structure of the labor and capital markets. E-commerce contributes to achieving sustainable development goals. Digital technologies used in e-commerce help minimize costs and expand market boundaries. Improved logistics meet consumer demands through close cooperation with suppliers. Despite the high dynamics of the e-commerce market, this sector faces a number of problems. Solving these problems will positively impact the further development of e-commerce.

CONFLICT OF INTEREST.

Authors declare that they do not have any conflict of interest.

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