






E-Commerce Market Pulse in Global Economic Development

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Abstract: The article outlines international trends of electronic commerce or e-commerce in global economic development. Types of e-commerce are under study. Dynamics, forecasts, volumes of the mobile payment market and expansion of the global chatbot market are analyzed. The rating of e-commerce retail sales countries is presented. E-commerce sales dynamics and forecasts in 2014-2024, dynamics of global Internet sales in 2011-2021, development of the e-commerce share in total retail sales in different regions during the COVID-19 pandemic, dynamics and forecasts for e-commerce shares in total retail sales in 2022-2030 are studied. Economic tools for regulating economic development are proposed to eliminate the digital divide in global economic development.

1 INTRODUCTION

E-commerce is one of the main components of the “new economy”, which is gaining greater significance for further effective development of commercial activities worldwide. At the present stage, global e-commerce as the basis of electronic information business contains a number of issues and problems to solve, so analysis and detection of its structural elements, main trends and patterns of development on the world market is a prerequisite for further development of commercial activities in general.


E-commerce is treated as business processes based on information technology or commercial activities on the Internet. At present, e-commerce allows economic entities to significantly reduce financial and time resources, ensure higher competitiveness, enter new markets, receive


additional information about consumer needs and quickly respond to demand changes.


International trends, improvement of the theory and methods of e-commerce as part of digital economy at the international level are the issues included into the circle of scientific interests of such foreign scientists as D. Johnson, D. Wood and D. Wardlow (Johnson et al., 2002). However, during the COVID-19 pandemic, there has been a division of consumers into electronic and traditional market ones.


Therefore, the research is aimed at outlining international trends in e-commerce, identifying problems and prospects for its development on the global scale.


To solve the set tasks, the following methods are used: general scientific methods of cognition (the system approach, structural and comparative analysis, regularity trends, subjective and objective cognition) to determine the essence, types, methods and tools of e-commerce; analytical methods to

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analyze the dynamics of e-commerce in the world; statistical methods to determine prospects for global e-commerce development; forecasting methods to forecast the volume and efficiency of global e-commerce.

2 GLOBAL E-COMMERCE AS THE BASIS FOR BUSINESS

Consumers and their benefits are the key factors in today's rapidly changing world. E-commerce has always been a way to improve consumer penetration worldwide. Many companies used to view e-commerce only as an option. Yet, nowadays, this has become an obligatory condition for business survival in the face of severe competition.

E-commerce as a set of economic relations among subjects of different national economies regarding exchange, distribution and redistribution of benefits via computer technologies primarily as a tool of information exchange becomes a natural result of scientific and technological advance that is caused by profound changes in the structure of global consumption.

In this respect, in the modern economic science, some concepts are transformed as a result of emergence of various interpretations of such terms as e-commerce and e-business.

Two factors have impacted development of e-commerce. First of all, it is the use of global electronic networks to transmit and exchange data during business operations. This phenomenon and the Internet spread have radically affected business as a whole expanding commercial relationship via the Internet.

Today, e-commerce has been incorporated into people's everyday life and will remain an integral part of business relations in the future.

2.1 Types of E-Commerce

E-commerce includes any business processes performed by means of information technology and the Internet. There are several basic systems by which commercial activity is carried out on the Internet. They are classified by the types of subjects participating (Murdiana & Hajaoui, 2020) (Table 1).

Table 1: Types of e-commerce.

Types	Characteristic
Business-to-Business (B2B)	It is a form of relations in which commercial enterprises and organizations are parties to agreements including all levels of information interaction between companies. Specific technologies and standards of electronic data exchange, such as EDI are used.
Consumer-to-Consumer (C2C)	This form provides for commercial relations between individuals. By means of specially organized sites, individuals offer goods and services without any intermediaries.
Business-to-Consumer/Consumer-to-Business (B2C/C2B)	E-commerce used to provide the end user with services, so this type has long been the largest by turnover. A simple example of the B2C system is an online store in which the buyer can choose the right product and pay online.
Business-to-Administration (B2A)	Interaction between business and administration involves business ties between commercial structures and government organizations ranging from local authorities to international organizations.
Consumer-to-Administration (C2A)	This direction is the least developed, but has a fairly high potential, which can be used to arrange interaction between the government and the consumer, especially in the social and tax spheres.
Business-to-Government (B2G)	It is a fairly young form of commercial relations that is rapidly developing. This includes various tenders or public procurement services.

The most common e-commerce options are B2B (Business-to-Business) and B2C (Business-to-Consumer). In addition, there are business models operating in the opposite direction (C2B or G2B) aimed at supporting business or offering it services. These forms of relations have not had much coverage yet and are under development. Since the market of

economic Internet tools is constantly developing, there arise new options and directions for their implementation.

As can be seen, e-commerce is present in almost all traditional forms of commercial and state structures and continues to develop rapidly.

2.2 Main International Trends of E-Commerce

Commercial activities carried out electronically eliminate some physical restrictions on sales growth as Internet systems are able to provide orders and support to customers 24/7, and their area coverage is limited only by the customer's access to the network.

The need to reorganize a company's economic activity is caused by continuous development and change of e-commerce technologies which is associated with technical innovations and changes in the market space (Hushko et al., 2021).

E-commerce, as one of the most actively developing sectors of the economy, generates various trends to keep businesses successful. In the modern world, the following main international trends can be distinguished:

1. Mobile purchases and mobile payments.

According to Statista, since 2016, sales on mobile devices have increased by 15% making 73% in 2021. In other words, e-commerce sales will be carried out on smartphones, in particular, due to the demand for this method of shopping among millennials (people born from 1980 to 1996) and Generation Z (people born in 1997-2013) (Figure 1) (The World Bank, 2021a).

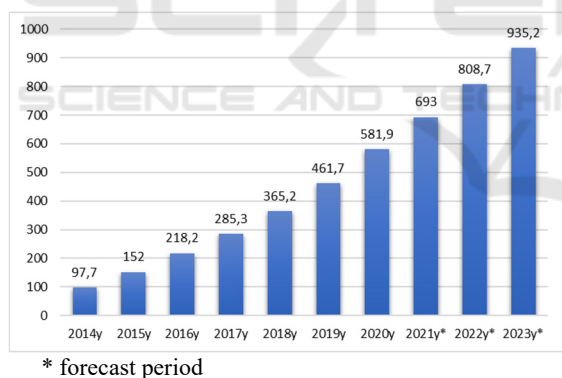


Figure 1: Forecast and volume of mobile payments, billion USD.

2. Voice commerce. Voice assistants such as Apple's Siri, Amazon's Alexa and Google Assistant are becoming increasingly popular. It is projected that by 2023 there will have been 8 billion devices with voice assistants including smartphones. In fact, voice purchases are expected to reach 40 billion by 2022.

3. Multichannel e-commerce. The very concept of multichannel roughly describes the winding route that the consumer covers from the wish to buy something until the moment of purchase. It is worth noting that buyers, who prefer multichannel commerce and

thoughtfully decide to buy, spend more. In fact, multichannel promotion is simultaneously a science and art to decipher the most insane nuances of who, where, when, how and why buys goods through a particular channel.

4. Artificial intelligence and machine learning. Artificial intelligence allows technology to understand repetitive human habits. The potential power of artificial intelligence and machine learning is growing day by day.

5. The golden age of virtual reality. Virtual reality (VR), also known as computer-simulated reality, makes you feel as if you have entered a simulated environment. VR will make customers' shopping experience even more specific.

6. Improved conversion of e-commerce. To do business in e-commerce means dealing with a highly competitive market. That is why, e-commerce improvement is the key factor as it allows you to stand out among competitors, build trust, offer a better customer experience and increase conversion (Hushko et al., 2019).

7. Chatbots as a progressive way to communicate with customers. A chatbot is a programme with a question-answer algorithm in the form of text- or audio-messages. Its main function is to recognize the interlocutor's request and respond correctly to it. This enables the brand to communicate with its customers on a twenty-four-hour basis. By 2025, the global chatbot market is expected to generate profits exceeding one billion dollars, e-commerce being a big part of that (Chatbots Market Research, 2020).

Chatbots will continue to be one of the advanced e-commerce trends in the coming years. The global chatbot market has reached a huge 24.3% of the total annual growth rate. 45% of end users consider chatbots their primary choice for request support.

The forecast and dynamics of chatbot market development is shown in Figure 2 (Chatbots Market Research, 2020).

8. Headless e-commerce (HEC). HEC systems are designed to be compatible with a number of interface systems: desktop and mobile sites, third-party platforms such as Amazon and Instagram, voice assistants (e.g. Amazon Echo), etc.

HEC also allows retailers to control all their inventory and orders from a single central platform. This greatly reduces the time it takes to perform multichannel updates while improving overall user experience.

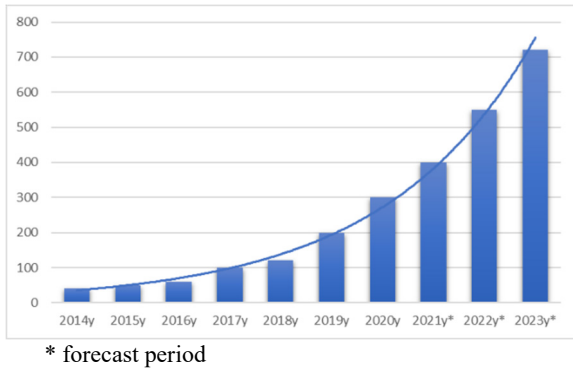


Figure 2: Expansion of the global chatbot market, million USD.

In fact, HEC enables combining basic operating systems (supply chain control, consumer management, financial management, etc.). Besides, it connects the consumer’s points to this main operating system without any crossover, which allows you to quickly make changes.

9. Environmental issue. Modern consumers have become more aware of how their purchasing behavior affects the environment. In particular, on the basis of analyzing purchases, payment eco-cards and terminals, various services for tracking the carbon footprint have recently appeared.

10. Visual commerce. The human brain processes visual information 60 000 times faster than a text. Experienced online sellers no longer use static photos of products, they usually include other types of visual elements such as interactive content, consumer-generated media, exciting videos, and augmented reality tools.

2.3 Rating of Top E-Commerce Retail Sales Countries

It is expedient to analyze the top countries by e-commerce retail sales in 2020-2021 that follow international e-commerce trends (Table 2) (Worldwide Retail and Ecommerce Sales, 2021).

Thus, China is the largest e-commerce market in the world, not least because of its significant population. There are over 600 million Internet users in the country. Shopping is the fastest online activity in China. At the same time, email marketing is a great success on the Chinese e-commerce market (Vipin, et al., 2021). The United States takes the second place despite the fact that there are about 191.1 million online buyers and only 28% of small businesses sell their products via the Internet. In general, more than a half (57.4%) of American stores work online. For most American buyers, the ability to check

availability of goods from home (in a storehouse located nearby or in an online store) is of key importance.

Table 2: Ten best countries by e-commerce retail sales in 2020-2021.

Countries	2020y	2021y	% of changes
1. China	\$2.296.95	\$2.779.31	21.0%
2. The USA	\$794.50	\$843.15	6.1%
3. The United Kingdom	\$180.39	\$169.02	-6.3%
4. Japan	\$141.26	\$144.08	2.0%
5. South Korea	\$110.60	\$120.56	9.0%
6. Germany	\$96.86	\$101.51	4.8%
7. France	\$73.80	\$80.00	8.4%
8. India	\$55.35	\$67.53	22.0%
9. Canada	\$39.22	\$44.12	12.5%
10. Spain	\$36.40	\$37.12	2.0%

2.4 Global E-Commerce Development Pulse before the Pandemic, during the Pandemic and at Present

E-commerce is one of the most dynamic markets and part of a small number of economy sectors that continue growing and developing despite the crisis, currency jumps and other problems faced by economies of different countries in recent years.

Analysis of the current state of e-commerce development in the world enables revealing main trends in this area. In 2020, total Internet sales amounted to almost 4 trillion USD as shown in Figure 3 (The World Bank, 2021b).

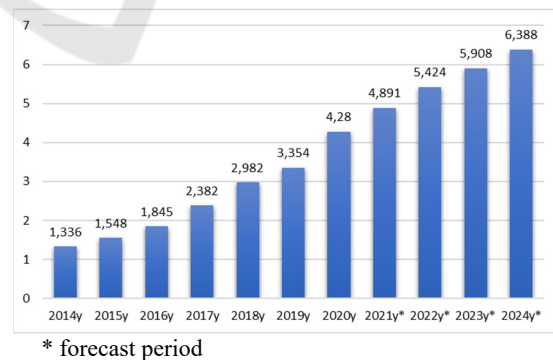


Figure 3: Dynamics and forecast of e-commerce sales in 2014-2024, trillion USD.

As can be seen, in 2020, the pandemic also caused a drop in online sales indices. However, in 2021, there has been a jump in Internet sales with increased

intensity of e-commerce worldwide (Figure 4) (The World Bank, 2021c).

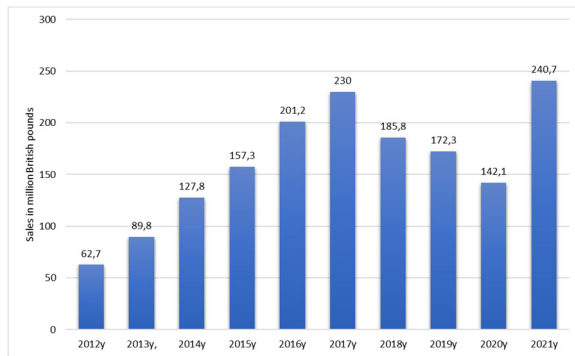


Figure 4: Dynamics of Internet sales worldwide in 2011-2021, million GBP.

In 2020, global e-commerce became an increasing area with no signs of decline even given the coronavirus crisis. E-commerce remains a popular choice for investment and new business, and further growth will contribute to development of user-friendly techniques, technologies, thus increasing competition in this regard (Tolstoy, 2021).

However, intensity of dynamics of the e-commerce share in total retail sales in different regions of the world is not the same (Figure 5) (The World Bank, 2021d).

As can be seen from Figure 5, during the pandemic peak, the share of e-commerce in total retail sales increased rapidly in all the regions under study. We can also note a general trend of significant excess of the e-commerce share in total retail sales in the current period compared to the pre-pandemic situation.

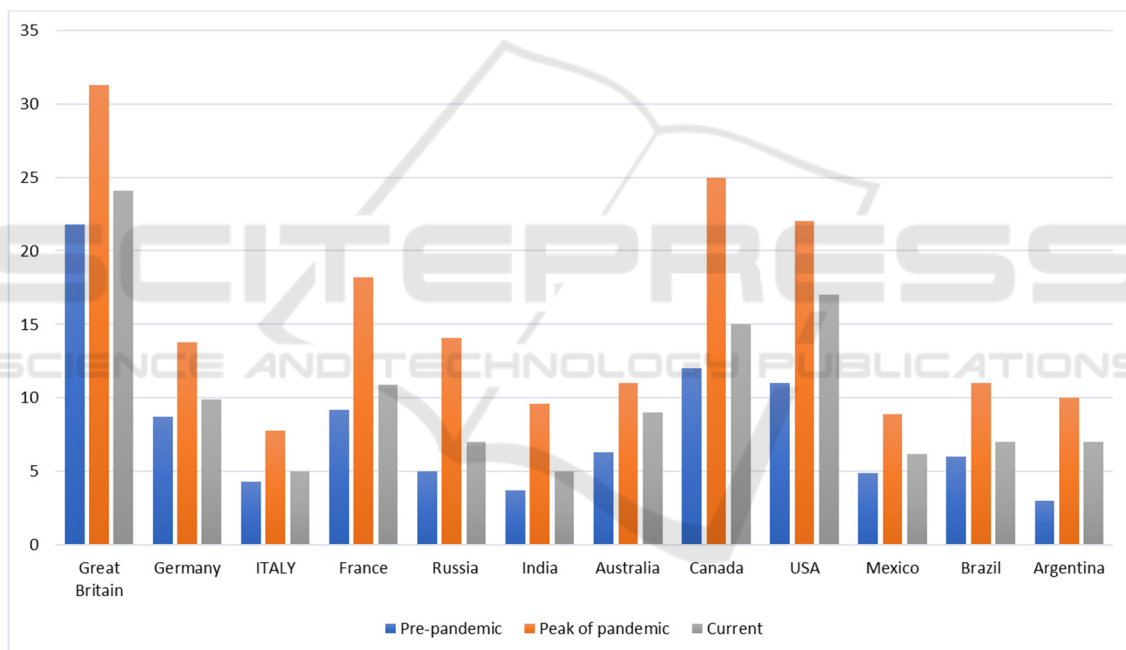


Figure 5: Development of the e-commerce share in total retail sales in different regions during the COVID-19 pandemic, %.

At the same time, an increase of the e-commerce share in total retail sales in different regions is noted for different intensity. In countries with high digitalization (Great Britain, the USA, France) during the pandemic peak, the share of e-commerce increased by 9%-11%. Countries with lower digitalization were able to replace retail sales with electronic ones only partially (3%-6%). However, the global trend indicates a steady increase in the e-commerce share in retail sales.

Apparently, given high population density and rapid spread of information technology, Asia occupies the leading position. The spread of retail e-commerce in Asia is associated with improved communication infrastructure and enhanced security of calculation methods. Today, more and more residents of Asia, primarily of China and India, are getting access to the Internet. Therefore, the annual 20% growth of the online sales rate is expected in this region (Lytvyn et al., 2021).

The countries of Europe and America are also worth noting, as these regions are highly developed and introduction of Internet technologies is part of an active increase in business efficiency.

Analysis of the e-commerce market and existing e-commerce models reveals that B2B total sales reached 10.8 trillion USD in 2020 (Figure 6) (The World Bank, 2021e).

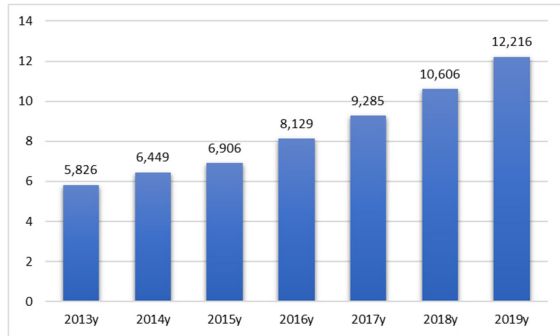


Figure 6: Dynamics of B2B e-commerce in 2013-2019, trillion USD.

Thus, the B2B e-commerce market is twice as large as that of B2C and it continues to grow.

Development of online-trade, as well as the economy as a whole occurs cyclically with interaction of technological innovations, economic and social factors. These cycles are the basis for building forecasts. During 2016-2020, the global e-commerce market was growing at a significant average annual pace and in the next four years, i.e. in 2021-2025, it is projected to grow as well.

2.5 E-Commerce Market Development Forecast

With all the scale and attractiveness of foreign e-commerce markets, many of Ukrainian B2B companies avoid them out of fear not to be able to compete with local and world players. In 2020, e-commerce sales accounted for 18% of all retail sales worldwide.

Figure 7 shows the real situation of e-commerce market development (The World Bank, 2021f).

Based on the analysis of 2015-2021 data, a linear equation of changes in e-commerce rates is built:

$$y = 2,0821x + 4,4857 \quad (1)$$

According to the obtained equation of constraints, $R^2 = 0.9673$, which indicates essentiality of the relationship between the analyzed indices, it is

possible to predict rapid development of global e-commerce in the nearest future.

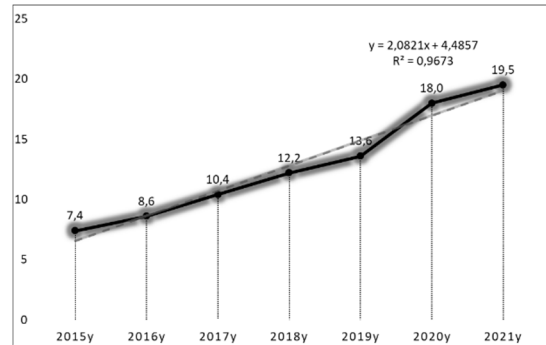


Figure 7: Dynamics of e-commerce shares in total global retail sales for 2015-2021, %.

Figure 8 shows the forecast of e-commerce market development (built by the authors).

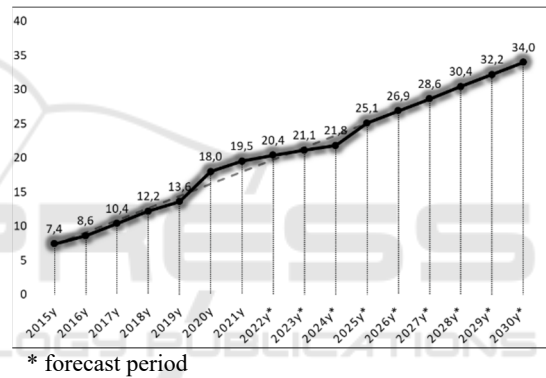


Figure 8: Dynamics and forecast of e-commerce shares in total global retail sales for 2022-2030, %.

The gradual growth of the e-commerce share in the world retail trade in 2015-2019 was transformed into rapid development in 2019. This is due to the fact that during the crisis, new technologies and approaches always appear being a new driving force for further development (United Nations, 2021).

Consequences of the adverse phase of the COVID-19 pandemic can last for a long time and e-commerce in goods and services will continue to adapt to new conditions. According to the analysis, we can say that in the short term, negative effects of the pandemic for the entire segment will be more significant, and only digital services sector and certain categories of goods that have increased demand as a result of the COVID-19 pandemic will benefit from the crisis (Arbidane et al., 2021). In addition, according to the studies, the growth in demand was rather short-term. When restrictions

weaken, many customers begin to return to more familiar offline purchases.

However, in the long run, this shock can provoke acceleration of digitalization of the on-market trading sector and, as a result, growth of e-commerce popularity in general. This may, in particular, be expressed in more active growth of the influence of existing technological trends in e-commerce and emergence of new trends.

Freedom of business activity and trade including the electronic one is the key to development of both global and national economies. Ensuring a favourable business climate is becoming a prerequisite for effective functioning of such high-tech sectors as e-commerce.

4 CONCLUSIONS

Introduction of social distancing, the quarantine and other restrictive measures in response to the COVID-19 pandemic has led to a fundamental shift in the structure of global demand for online shopping, as well as to increasing the use of digital communication and remote consumption tools, such as social networks, Internet telephony, teleconferencing, and video streaming.

The analysis of e-commerce volumes in global retail sales for 2015-2021 reveals the linear character of the growing curve. The obtained linear dependence allows predicting the growth rate of e-commerce in total world retail sales by 2030. According to the data obtained, in 2030 the share of e-commerce in total global retail sales will make 34%. This indicates a change in the structure of the global trade market. However, not all regions will be able to ensure such structural changes in the world trade due to existing digital constraints.

Analysis of the volumes of traditional and e-commerce in the period of 2015-2020 demonstrates a sufficient difference in indices with clear predominance of e-commerce. Transition to online sales during the pandemic has contributed to this trend.

As can be seen from the diagrams, in the period of slowbalization the growth rate of e-commerce is much higher than in the previous period of globalization. This is due to the slowdown in physical international trade accompanied by development of affordable sales in the digital space.

It is proved that with IT advances and changes in consumer behaviour it is necessary to follow current e-commerce trends. Regardless of the e-commerce direction, one should take it to improve

customers' shopping experience and build long-term relationships with them. You can develop together with e-commerce and take advantage of its current and innovative trends, thus raising evolution of e-commerce to a new level.

The pandemic highlights critical importance of the digital economy and the urgent need to bridge a digital divide both within and between countries and exacerbates existing problems of having access to e-commerce opportunities for small businesses, sellers and consumers in developing countries.

Many traditional obstacles associated with the digital divide have become even more serious in the context of the COVID-19 pandemic. These include access to online payments, reliable Internet and electricity connections, high cost of cross-border trading, visibility issues during online searches, and difficulties in gaining consumer trust.

Thus, the crisis as a whole has widened the digital divide between consumers who have access to the Internet and are digitally literate, and those who do not possess these skills and opportunities. This division is especially pronounced between developed and developing countries, urban and rural areas, the rich and the poor, large and small firms as well as for the elderly and people with disabilities.

All these problems can potentially increase global inequality. Therefore, the digital divide can be eliminated by economic instruments for regulating economic development, in particular through:

- developing information support for enterprises to ensure their effective trade in the digital space during the pandemic;
- expanding Internet coverage and providing access to the digital economy in all the regions;
- improving the level of digital literacy;
- developing the section of the labour code for online workers to provide security and labour safety of employees working remotely (Hushko et al., 2021);
- elaborating control methods and ensuring compliance with safety and quality standards when implementing e-commerce;
- ensuring cyber-security for e-commerce consumers and employees;
- providing comprehensive business support during transition to e-trade under pandemic conditions;
- developing budget policy measures in the context of the pandemic to support online sales channels.

Therefore, in order to use e-commerce and actively involve developing countries in international e-business, it is necessary to pursue a systematic state

policy in the IT sector and introduce advanced tools in view of current trends. It is proved that development of information technology and changes in consumer behaviour make us follow e-commerce trends. Regardless of the e-commerce direction, one should take it to improve customers' shopping experience and build long-term relationships with them. You can develop together with e-commerce and take advantage of its current and innovative trends, thus raising evolution of e-commerce to a new level.

The measures presented to eliminate the digital divide of state economic regulation can only play a stimulating role and target market failures creating an environment in which digital business can thrive. Governments need to realize the potential of private initiatives in the e-commerce sector to achieve sustainable development goals during the pandemic.

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