

Lecture Notes in Networks and Systems 224

Dalia A. Magdi  
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Amit Joshi *Editors*

# Digital Transformation Technology

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# Lecture Notes in Networks and Systems

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# Digital Transformation Technology

Proceedings of ITAF 2020

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# E-Commerce in Ukraine: Place, Range of Problems, and Prospects of Development



Vitalina Babenko , Iryna Perevozova , Oleksandr Prystemskyi ,  
Olha Anisimova , Alexandr Fedorchuk , and Iryna Balabanova 

**Abstract** The place of Ukraine in the global electronic business and electronic commerce is considered. The place, tendencies, problems, and ways of solving Ukrainian problems of electronic marketing are investigated on the basis of comparative information for different years and countries. The subject of the article is Ukrainian e-business and e-commerce, and its place in the global e-business. The goal is to study and search for ways to develop and improve the electronic market of Ukraine in the conditions of the domestic Ukrainian market. The task is to find a modern place for Ukrainian e-commerce, problems, and trends, as well as find ways to solve problems. Within the framework of this study, methods of comparative analysis are used on the basis of statistical materials, regulatory documents, and scientific publications for descriptive and structural analysis to assess the state of the Ukrainian electronic market and methods for its formation of trends in their development and prospects. As a result of the study, it was found that at this stage, the main limiting factor is the weak level of informatization of society, in particular the low quality and unevenness of the Internet coverage. It is proposed to use the achievements of technological and informational progress and the legislative platform to solve existing problems. A list of the most popular e-commerce business models used in the country

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has been formed, the largest subjects of these relations have been identified as well as opportunities for the further development of the e-commerce market and attracting new users.

**Keywords** E-commerce · B2B · B2C · G2C · Electronic platform · Marketplace · Competitiveness of electronic business · Electronic brand of country

## 1 Introduction

In the last years, there is passing to the global use of digital electronic facilities with the aim of exchange information and of realization of transaction operations with the aim of the acquisition of a commodity, that must satisfy consumer needs. In this connection, the division of labour of the international market takes place between those subjects that before did not take participation in the process. The modern development of world trade is impossible without e-commerce. As one of the key drivers of the development of world trade electronic business comes forward in a modern world economy [1]. In the conditions of modern scientific and technical progress and increase of requirements to speed of exchange information between the subjects of trade activity effective organization of electronic business of the country is able to promote her competitiveness. In modern terms electronic business in Ukraine is on the stage of becoming and develops constantly, acquiring new turns and increasing the amount of money, but in the last years, the rates of height began to go down [2]. Besides, a disturbance causes the rapid rates of integration, that in the conditions of the emerging market can meet certain problems, that will need or need a decision that causes the necessity of realization of the electronic market of Ukraine and selection of certain problems and decisions analysis in the conditions of contemporaneity. The development of e-commerce in the daily life of Ukraine is an interesting research problem and can serve as an experience for the integration of e-business in countries with emerging market economies. The relevance of the research in this article is based on the fact that the theoretical and methodological foundations in assessing the effectiveness of e-commerce in Ukraine have not been fully investigated in the Ukrainian and foreign literature, which does not allow studying its place, range of problems and development prospects in full.

## 2 Literature Review

The problems of the formation of e-commerce in different countries and in the world as a whole are investigated in the scientific papers of various researchers on the topic of e-business. The authors study the impact of various sectors of e-commerce on the country's economy. Some scientists are engaged in the investigation of ecommerce in Ukraine, although most of the publications are devoted to separate problems, and not

to the analysis as a whole. A number of Ukrainian and foreign scientists are engaged in the problem of e-commerce in Ukraine. The authors of the papers [3, 4] investigate the problem of modern trends in e-commerce based on the factors of the development of international e-commerce in the context of globalization. The scientific works of Hlinenko L. and Dainovskyi Yu. [5] study the tendencies of Ukrainian e-commerce, its role and tendencies. The most common business models of Ukrainian electronic merchants and their comparison in individual business processes with the world's leading Internet merchants are presented in the publications of A. Lukyanchenko [6]. The author examines the problem of e-commerce by describing the specifics and tools typical of Ukrainian e-commerce. In the article of V. Oliinyk et al. [7, 8] ten tendencies of ecommerce in Ukraine are investigated, of which the main ones are: loyalty and personalization; regionality; change of categories; sector; mobilization; social commerce; work with the community; expansion of China; efficient logistics; multichannel. Chankhi O. and Ozemblovskyi V. [9] describe the B2C vector of e-commerce in Ukraine and identify the European vector as the main direction for the development of e-commerce in Ukraine. Apopiy V. and Shaleva A. [10] highlight the socioeconomic aspects of e-commerce, examining the main problems of Ukrainian retail. The issues related to the country's information infrastructure as a basis for the development of e-commerce are considered too. The processes of informatization and their mechanisms were studied by the following scientists: Kulchik Z. et al. [11], Perevozova I. et al. [12], who studied the tools of information and communication technologies in the country's economy. Podgorna I. et al. [13] consider electronic markets as a tool for improving the Ukrainian economy. Hrabovskyi Y. et al. [14] examines informatization and its implementation in the Ukrainian economy.

Defending the place of Ukraine and world electronic business and commerce, this paper analyzes the modern state of electronic business in Ukraine, to define the basic problems of development of electronic business in Ukraine and to give ways to their decision.

### **3 Methodology**

In the article, the following methodology is used: method of analysis at the research of statistics, method of synthesis at the leading out of new tendencies, method of the scientific abstracting and method of generalization.

### **4 Research Results and Discussion**

Emerging cyberspace is expanding at a very rapid rate. It not only stores and processes electronic information resources but also provides lively exchange of them. Therefore, the main task now is to keep up with the global processes taking place in the modern world in view of the development of information and telecommunication

technologies. The world is on the cusp of the era of online e-business (hereinafter referred to as the OEB), which generalizes various opportunities for interaction between suppliers and consumers; in addition, it makes them independent, unattached to fixed devices, enabling them to make purchases, make payments, participate in the auction even with just a cell phone or a handheld device [15].

Web services can always be used, regardless of time or location.

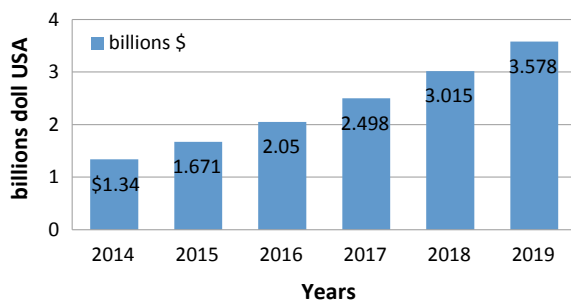
That is, we can talk about the emergence and development of a new market, namely the electronic market on the basis of which more and more transactions and services are carried out.

The global e-commerce market is one of the most dynamic and steadily growing markets. According to the eMarketer report [16], in 2019, the volume of world retail e-commerce reached 12.8% of retail trade in general (Fig. 1).

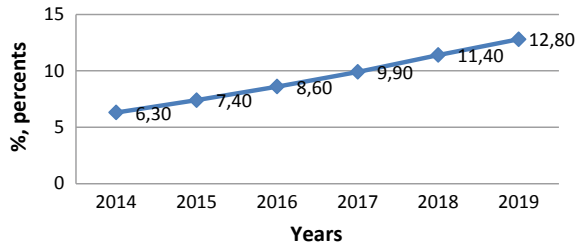
In Fig. 1, we can see a steady increase in retail sales worldwide through the Internet, which presents to us the importance and extent of e-business development in the world. We can see that in the last five years, sales have doubled from \$1.67 billion to \$3.578 billion. There is also a steady upward trend that is stable and growing by half a billion US dollars each year. That is to say, the prospect and continued development of e-commerce in the e-commerce segment worldwide, it can also be noted that sales growth is related to the proliferation of Internet and customer trust in marketplaces, and therefore, the next growth will be related to the penetration of the Internet to countries, developing countries, and third world countries through the inclusion of new markets in the world market, which will lead to a constant and stable growth of this industry.

According to Fig. 2, we see the growth rate of online purchase agreements relative to their purchase in real life. Based on this chart, we can conclude that buying goods online is gaining in popularity and growing little by little, picking up retail positions in real life. Over the past five years, the percentage of electronic retail transactions has more than doubled. We can also see an increase in the growth rate, albeit small if the increase from 2014 to 2015 was 1.1%, then in the period from 2018 to 2019, this increase was 1.4%, and the upward trend is visible throughout the chart. Based on the trends of already known growth, as well as the improvement of the technological and electronic sphere, we can speak about ever-increasing growth in the future.

**Fig. 1** Retail in the e-commerce market in the world [16]



**Fig. 2** Part of e-commerce from the global retail level [16]

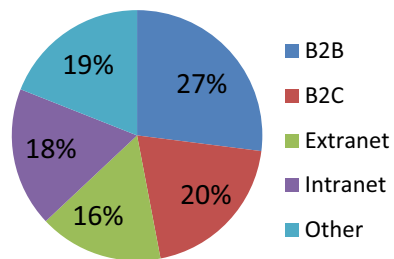


Speaking of e-business, it is necessary to note its segmentation. Figure 3 shows that the most popular in the world is the B2B segment, followed by the B2C segment. That is, we can say that e-business is more promising for providing services to another business than e-business for providing services and/or goods to the buyer. It should also be noted that this trend persists in many individual countries. This trend is also present in Ukraine. However, the e-commerce market in Ukraine is one of the most successful Ukrainian markets in general. This is the only industry whose growth rate has been the highest in Europe in the last two years, providing highly optimistic forecasts and anticipating more and more new entrants. However, compiling and delivering a business development strategy based on only a linear extrapolation of the previous years' statistics is very dangerous, which makes the study of the real state and trends of the e-commerce market highly relevant [17, 18].

Through analyzing e-commerce in Ukraine, it is possible to speak about its ambiguity. In spite of its obvious advantages (openness, democracy, globality, etc.), e-business has an aggressive range of points for doing business in it, the success of which depends on the degree of the thoughtfulness of the business strategy. Indeed, the fundamental foundations of e-business are the same as the foundations of classic business: its purpose is to generate cash flow, generate profits, and create competitive advantages. The main difference between e-commerce and traditional methods of business is that it flows faster, and therefore, its competitive advantages are faster [19].

There are several reasons for this situation: insufficient Internet access, inactive use of plastic cards, underdevelopment of electronic payment systems, lack of preparedness for customers to work online, and low purchasing power of the population. The poor organization of the delivery of goods and the lack of confidence in

**Fig. 3** World structure of marketing segments in e-business (compiled by the authors)



the systems of prepayment are also deterrents. The obvious consequence of this is that most B2C (business-to-consumer) e-commerce businesses are storefronts, not a source of income. Thus, at the current stage of development of e-commerce in Ukraine, the functioning of online stores does not go beyond the experiment of using the opportunities of the network.

However, all this does not deny the future of Ukrainian retail on the Internet. There are markets for goods and services for which e-commerce is far more profitable than traditional commerce, and the general problems (imperfection of hardware and technology bases, delivery and payment systems, low solvency of the population, etc.) are not as significant (Table 1). These are digital goods and information for which prompt delivery is important such as luxury goods (cars, antiques, and jewelry), travel services, and rare goods, for which considerable expenses are there for search and purchase (spare parts, special literature) [20].

As can be seen from Table 1, the dynamics of e-commerce indicators in Ukraine is much better than the dynamics of retail indicators in general. The total Internet penetration rate in Ukraine is now around 62%, for users with above-average income, it reaches almost 100%, similar to the situation in the age group of 15–45 years. From this group, there are three categories of Ukrainians who use the Internet: schoolchildren and students, military personnel, and business owners who provide the lion's share of active online shoppers [21].

Figure 4 presents data on the number of Internet users according to the State Statistics of Ukraine. For 2019, the number of Internet users is 26,066 thousand people, which is 62% of the total population of the country, which speaks of insufficient provision of Internet resources and gives a “ceiling effect” for e-business. However, it should be noted that in the last five years, the number of Internet users has increased more than four times. It is fair to say that this trend is unlikely to occur, but if we do not take into account the periods with jumping graphs, namely 2014–2015 and 2016–2017, we get an average increase of 1.5 million users per year.

**Table 1** Dynamics of indicators of development of e-commerce of Ukraine [20]

Indicator	2017	2018	2019	2020
Retail trade in Ukraine, billion UAH	901.9	1031.7	1159.3	1228.9
Retail trade in Ukraine, billion USD	76	47.4	45.4	43.5
Volume of Internet trade in Ukraine, billion UAH	12.3	25.5	38.4	48
Internet trade volume in Ukraine, billion USD	1.04	1.17	1.5	1.7
Annual retail growth index in USD equivalent (%)	1.5	14.4	12.4	6
Annual growth index of retail trade volume in UAH equivalent (%)	−31.5	−37.6	−4.3	−4%
Annual index of growth of Internet trade in UAH equivalent (%)	75.2	107.6	50.4	23
The annual index of growth of Internet trade in USD equivalent (%)	18.3	13.2	28	13
Internet penetration in Ukraine (%)	1.4	2.5	3.3	4

**Fig. 4** Number of Internet users in Ukraine (compiled by authors by materials [21])

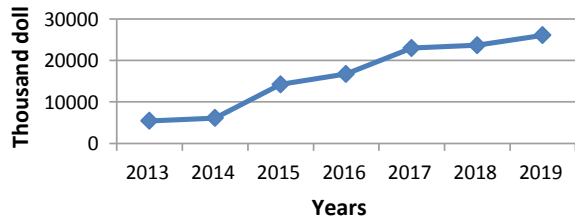
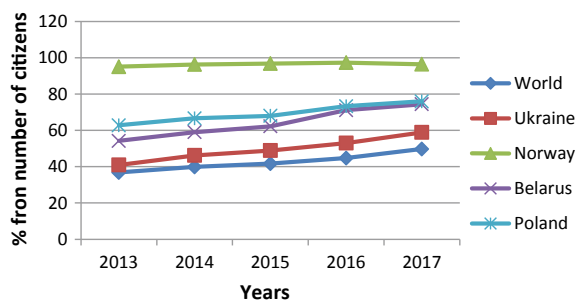


Figure 5 shows us Ukraine’s position in relation to the world and its neighboring countries. Although Ukraine exceeds the average number of Internet users in the world, it lags behind its neighbors by 17% of the population coverage and 37% behind the world leader—Norway. In terms of growth trends, we can see the similarity of growth rates and positions of the most graph of Ukraine to the world average: in the last year, it is shown the world has grown by 5% while Ukraine has grown by 5.9%; from 2015 to 2016, Ukraine has grown by 4.1% and the world by 3%; from 2014 to 2015, Ukraine has grown by 2.7%, the world by 1.8% from 2013 to 2014, Ukraine has grown by 5.3%, and the world by 3.1%. We can conclude that although the growth rate is similar to the world average, but still Ukraine exceeds them by an average of 1% if you do not take into account the growth of Ukraine from 2013 to 2014. That is, the average growth of Ukraine is 4.5% per year while the average growth of Belarus is 7.5%, and the average Poland’s growth rate is 3.3%. The growth rate of Ukrainian Internet users exceeds that of Poland and the world, but 1.5 times lower than the growth rate of Belarus.

In addition, it should be noted that as of 2019, the average Internet coverage in the regions of Europe is: Northern Europe—94%, Western Europe—90%, Southern Europe—77%, Eastern Europe—74%. At that time for Ukraine in 2019, this figure was 56%, which is 18% less than the average result in our region (see Fig. 4).

If we are talking about the level of development of e-business and e-commerce in the world and Ukraine, we need to sink such an important indicator as the index of development of information and communication technologies (hereinafter ICT). Table 2 shows that Ukraine ranks 79th in the world, although in 2015, Ukraine ranked 71st, and in 2016 ranked 78th place with an index of 5.31, i.e., a decrease in

**Fig. 5** Number of Internet users in percent of the population (compiled by authors by materials [22])



**Table 2** ICT countries ranking [23]

Rate	Country	Index
1	Iceland	8.98
2	South Korea	8.85
3	Switzerland	8.74
4	Denmark	8.71
5	United Kingdom	8.65
6	Hong Kong	8.61
7	Netherlands	8.49
8	Norway	8.47
9	Luxembourg	8.47
10	Japan	8.43
76	Antigua and Barbuda	5.71
77	Dominican Republic	5.69
78	Thailand	5.67
79	Ukraine	5.62
80	China	5.60
81	Iran	5.58
173	Guinea-Bissau	1.48
174	Chad	1.27
175	Central African Republic	1.04
176	Eritrea	0.96

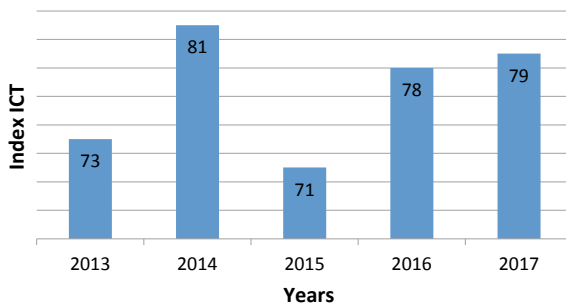
the ranking is not due to a deterioration of ICT conditions but to a slow improvement when compared to the world, but still, such a low position does not improve the situation for the development of e-business in Ukraine, but only slows it down. The biggest problem is not even the low position of Ukraine, but the very slow growth rates because they directly represent the opportunities and rates of e-business development in Ukraine. It is quite telling that in some Atlantic islands, the development of ICT is better than the Ukrainian.

Figure 6 shows the position of Ukraine on the ICT index from 2013 to 2017. From this chart, we can conclude that there is no continuous improvement and introduction of new communication and information technologies in the territory of Ukraine. The biggest improvement was in 2015, in the future, the pace of ICT improvement in Ukraine slowed down. That is, it is possible to conclude that there is no stable technology for improving ICT in Ukraine and its spontaneous nature or its inefficiency in Ukrainian realities.

Ukraine ranks 51st in the e-commerce rankings in the world, which is twelve positions higher than in 2017. These data show that the development of e-commerce in Ukraine has recently intensified due to the quality improvement of postal services and Internet services. This can predict healthy positive trends for its further development, but the situation is still in a difficult situation because the main incentives for growth



**Fig. 6** Ukraine's position on the ICT index (compiled by authors based on materials [20, 24])



are the number of Internet users and the number of active Internet users [25]. Only 53% of the population of Ukraine use the Internet, so the B2C can reach a far from complete market, which will slow its development and create a ceiling effect [21]. Therefore, it is possible to point out the urgent need for a policy of informatization of regions in Ukraine.

It can be said that Ukraine is a mediocre place in e-business, and although Ukraine's indicators by many factors exceed the world average, they remain low relative to not only developed countries, but also among neighboring countries and countries of the Eastern European region. According to the ICT and e-commerce index, Ukraine ranks 79th and 63rd, respectively, which is the world average result, and the 79th place in the ICT index is generally below the average. Although Ukraine has positive trends in the development of e-business, especially in e-commerce and the B2B sector, it is comparable to their real counterparts, but despite the fact that these results are above average in the world, their development rates are small in the context of the countries of the same group with Ukraine. That is, Ukraine's position in e-business is insufficient to speak of its significant contribution to the global e-business sector.

## 5 Conclusions

Taking into account the analysis of the main trends in the development of the sphere of e-commerce in Ukraine, it is possible to form the following long-term prospects for e-commerce entities:

1. The constant increase in Internet users significantly expands the possibilities for attracting consumers of goods and services.
2. The consciousness of consumers is changing more and more every day toward the inclination to implement information technologies in all spheres of life, including the implementation of transactions via the Internet.
3. The e-commerce subject always has the potential to expand by covering new, different from the usual, market segments, as well as attracting other segments of the population.

4. The management of the service provider enterprise is not limited either by time or space.

If we talk about the short-term prospects for the development of e-commerce in Ukraine, then this, of course, is the improvement of the regulatory framework, and the transfer of the experience of foreign-trading platforms and their adaptation to the conditions of e-commerce within the country. It is this revision of the terms of e-commerce with Ukrainian platforms that will attract the audience that is an active user of foreign, especially Chinese, sites.

Thus, on the basis of the study, it was determined that electronic commerce in the world market is identified with the concept of electronic commerce. According to the Law of Ukraine “On Electronic Commerce,” electronic commerce is defined as economic activity in the field of electronic purchase and sale, the sale of goods remotely to a buyer by making electronic transactions using information and telecommunication systems. A statistical analysis of the development of electronic commerce in Ukraine has been carried out, the main trends that have formed in this area have been investigated. It was determined that Ukrainians are increasingly beginning to use the information space to carry out various operations. A list of the most popular e-commerce business models used in the country has been formed, the largest subjects of these relations have been identified, as well as opportunities for the further development of the e-commerce market and attracting new users.

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