Abstract: The research characterizes the phenomenon of digital divide, contains an analysis of its features in Ukraine. A multistage approach was used for the analysis. Based on the results of the analysis of individual indicators (the level of economic development of the country, geographical, social, demographic and gender differentiation of society, the degree of state participation in the development of telecommunication and information technologies), organizational and economic prospects for solving the problems of the digital divide in Ukraine have been established. The research reveals the approaches to the formation of the information community, the identification of negative manifestations in the development of telecommunications that arise in the conditions of intensive development. All these indicators are considered in the example of Ukraine, with an emphasis on the inconsistency of the levels of general economic and info-communication development.

Keywords: information divide, digital divide, telecommunications, outsourcing, Ukraine

INTRODUCTION

The most relevant trends in the development of the modern world community include the processes of globalization and informatization. It is their level of development that affects the final socio-economic state of the country. Intensive development of informatization causes various social and economic effects. One of them is the "digital divide".

All the economic processes taking place at the macro level have deep, ambiguous both social and political direct and reverse consequences. In the event that the state does not take an active position in the organizational and economic development of its own telecommunications and info-communication technologies, the national economy falls into the group of countries beyond the "digital divide".

Objective: To investigate the peculiarities of the organizational and economic development of the "digital divide" phenomenon in the conditions of functioning of the telecommunication branch of the Ukrainian economy.

METHODS

The issues of the existence of a digital divide are constantly being considered within the framework of the work of the United Nations. In addition, in 1997, in the
Development Program, the definition of "information poverty" was introduced, which is expressed in limiting the access to information, knowledge, innovations and telecommunications. "The IMF researches in this area show that growing inequality creates risks for the strength of economic growth, that the nature of public policy measures affects the distribution of income, and that government agencies can also help improve the situation" (IMF Annual Report 2017 Promoting Comprehensive Growth, 2017). The English term "digital divide" has received several meanings in the Ukrainian version. E. Lobovikova (2007) considers "digital inequality" as an element of information inequality, a kind of social differentiation in the implementation of the possibilities of the latest information and telecommunication technologies. V. Domarev (2002) introduces the concept of "information barrier" as a set of various obstacles that arise during the dissemination and use of information. O. Vartanova & O. Smirnova (2009) point to a generalized phenomenon of unequal access to information and communication technologies, which is due to the increasing polarization of modern society at the intellectual, social, economic and political levels. At the same time, the authors (O. Vartanova, O. Smirnova) singled out information and digital differentiation as the main and priority world problem.

There are also broader definitions of the digital divide. N. Rzhevskaya (2010) interprets the digital divide as an inequality in access to social, economic, educational, cultural and other opportunities due to lack of access to information computer technologies. This approach reflects the extreme urgency of research into the problems of digital inequality.

The problems associated with the limited capacities of individual strata and categories of the population in modern society are paid close attention by both researchers and practitioners. Thus, M. Castells (2010) devoted a whole chapter of his book "The End of the Millennium" to the problems of information capitalism and information poverty.

The Ukrainian researcher O. Anishchenko (2012) pointed out that the dynamics of the modernization process, and, therefore, the pace of the progress of society, depend on how and when the public can obtain new information opportunities.

Digital inequality becomes the basis for further stratification of the world society, according to the criterion of possible access to information (knowledge) that are transmitted through the use of telecommunications and information technology.

Investigating this phenomenon, it is expedient to carry out the analysis according to the logical chain: 1) The overall economic level; 2) the stratification of society by geographical principle (regions, cities, and enterprises), stratification by social, demographic and gender component; 3) state participation in the development of telecommunication and information technologies; 4) identification of development features – outsourcing and out-staffing services.

RESULTS

The stratification of the world information community takes place at the level of countries, the so-called external, and can develop within each state. It is advisable to analyze the external information divide by comparing achievements in the level of
ICT development of different countries. To analyze the internal digital divide, it is necessary to operate with national data and focus on in-country indicators.

Table 1

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1. GDP (billions of US dollars)</td>
<td>183.30</td>
<td>133.50</td>
<td>91.03</td>
<td>93.27</td>
</tr>
<tr>
<td>2. GDP per capita (dollars per year per inhabitant)</td>
<td>4029</td>
<td>3104</td>
<td>2124</td>
<td>2185</td>
</tr>
<tr>
<td>3. Average annual salary in Ukraine without taking into account pensions and social payments, USD</td>
<td>3156</td>
<td>2184</td>
<td>1956</td>
<td>2256</td>
</tr>
</tbody>
</table>

Source: State statistical service of Ukraine (2017)

For the objectivity of the judgment, the analysis of the main macro indicators is carried out in the dollar equivalent (see Table 1). GDP of Ukraine, GDP per capita and incomes of the population for the analyzed period unanimously show the peak of the maximum deterioration in 2015. This is primarily due to military actions in the east of Ukraine, as well as the loss of part of GDP from the territories of Crimea, Lugansk and Donetsk regions. 2016 is characterized by the restoration of the positive development of macroeconomic indicators in Ukraine.

GDP per capita and average wage in Ukraine reflect general economic trends, they are among the lowest in Europe. In 2016, the average annual salary in Ukraine without taking into account pensions and social payments by $ 71 exceeds GDP per capita. This period for the economy of Ukraine can be defined as a period of recession.

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All countries and regions differ in terms of access to the Internet and telecommunications networks. Small towns and villages are subject to additional information gaps, even in prosperous countries. The extent of ICT coverage is also influenced by the enterprise sector, its location and organizational form.

So, the main centers and producers of IT services in Ukraine are the largest cities of Kiev, Dnipro, Odessa, Lvov, eliminating digital inequality in access to ICT could bring additional profit to the industry, because more and more popular is the creation of remote teams that are able to quickly implement project development. According to statistics, in Ukraine in 2016, 95.2% of enterprises in their work used computer equipment, of which 98% were connected to the Internet.
There is also a social and demographic component of the digital divide. There are differences in the use of the Internet and telecommunications between different age groups, men and women, residents of large cities and small towns, between people with higher education and less educated people, and people with different income levels.

P. DiMaggio and E. Hargitai identified five basic characteristics for the division of the population in the revised definition of digital inequality: the availability of technical means and connections, autonomy of access, skills in using information technologies, the availability of social support in the development of information technologies, the use of information technology (DiMaggio & Hargitai, 2001).

There is the project Opinion Software Media© in Ukraine since 2010. It is executed by the InMind Factum Group Ukraine Company (Factum Group Ukraine Research Holding) on the initiative of the Internet Association of Ukraine, for the purpose of analysis and research. According to their research in 2016, 62% of Internet users are citizens over 15, more than a third – up to 29 years, 36% and 16% are users of the age group 30-44 years and 45-54 years, respectively. The share of the age group over 65 years is about 3%.

On the basis of gender in Ukraine, the distribution is as follows: 46% of Internet users are men, 54% are women.

Access to the Internet among rural residents is 47% and 69% among urban, as small, up to 100 thousand inhabitants, and large. There is practically no differentiation between the number of Internet users in large and small cities.

We should also highlight the regularity in increasing the share of mobile phones in using the Internet, in comparison with stationary computers. Among subscribers who regularly use the Internet 32% of users of mobile devices, 6% only from mobile devices. It is expected that this trend will continue in the future, as well. Mobile phones in their functional capabilities are constantly approaching personal computers.

In the regional context, residents of the city of Kiev have the highest mobile communication coverage per 100 people: 229.8, in the Donetsk region - 163.78, in Kharkov - 163.2. The least provided with mobile communication live in Khmelnitsky region 86.9 and Ternopil region 86.1.

The goals of the state policy for the development of telecommunications are different in each country. They depend primarily on the level of socio-economic development; level of development of the communications industry in the country; legislative framework, etc. Common approaches to the regulation of the telecommunications sphere are improving the infrastructure, improving the quality of services and profitability of the information communications industry itself, as well as the effective use of telecommunications in the development of other sectors of the national economy.

The National Commission, which implements state regulation in the field of communication and information, carries out general regulation and stimulation of development. The Commission determines the priorities for the development of the telecommunications industry, and also regulates and stimulates the development of
the communication and information market with the aim of possibly providing quality citizens with high-quality telecommunications services.

One of the directions of state regulation of this industry is licensing, certification and organization of activities of operators and providers. In Ukraine, the same methods of regulation and management are applied, the result of which is an increase in the number of market participants (see Table 2)

### Table 2

The dynamics of the number of enterprises in 2013-2016, which provide the activity of the telecommunication industry of Ukraine

<table>
<thead>
<tr>
<th>Type of activity of the enterprise</th>
<th>2013</th>
<th>2014</th>
<th>+/-</th>
<th>%</th>
<th>2015</th>
<th>+/-</th>
<th>%</th>
<th>2016</th>
<th>+/-</th>
<th>%</th>
<th>During the period</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are at the end of the year operators, telecommunication providers, among them:</td>
<td>3752</td>
<td>4255</td>
<td>503</td>
<td>13,4</td>
<td>4656</td>
<td>401</td>
<td>9,4</td>
<td>5709</td>
<td>1053</td>
<td>22,6</td>
<td>1957</td>
</tr>
<tr>
<td>Telecommunication operators</td>
<td>2600</td>
<td>2973</td>
<td>373</td>
<td>14,3</td>
<td>3229</td>
<td>256</td>
<td>8,6</td>
<td>3453</td>
<td>224</td>
<td>6,9</td>
<td>853</td>
</tr>
<tr>
<td>Telecommunication providers, from them</td>
<td>1152</td>
<td>1282</td>
<td>130</td>
<td>11,3</td>
<td>1427</td>
<td>145</td>
<td>11,3</td>
<td>2256</td>
<td>829</td>
<td>58</td>
<td>1104</td>
</tr>
</tbody>
</table>

Source: National Commission, which carries out state regulation in the field of communication and informatization (2017)

For the period 2013-2016, the number of enterprises, major players in the telecommunications services market increased by 1957 units, or by 52%. The largest increase in market participants occurred in 2016. Significant changes are observed in the analysis of the structure of activities, so the growth in the number of telecommunications operators in 2014 was 14.3%, gradually decreasing to 6.9% in 2016. The growth of the total number of telecommunications operators for the whole period amounted to 853 enterprises. The number of telecommunications providers increased at a much higher rate, the largest increase in 2016 was 829 enterprises per year. During the analyzed period, the number of providers increased by 1104 enterprises or by 96%. Thus, the active growth in the number of telecommunications market participants suggests that this business in Ukraine is promising; the services of these enterprises are in demand and bring revenue to enterprises. Telecommunication services, due to the competitive struggle of market participants, become more accessible, as a consequence, attracting additional consumers of this service. In turn, the functional features of telecommunications services are a factor in reducing the "digital divide" within the state.

J. De Haan (2004) notes that when analyzing the digital divide, it is important to consider not just the presence and absence of an Internet connection, but also how it is used. In addition, researchers often confine themselves to descriptive analysis and rarely talk about the consequences of the digital inequality. The results and efficiency of the telecommunications industry and informatization should be analyzed from the perspective of the contribution to the creation of Ukraine's GDP.
The figure illustrates the dynamics of the achievements of the domestic IT sector in the period 2013-2016. It is obvious that the export of IT services has a clear tendency to increase, since at the beginning of the period it is $1.1 billion and 0.6% of Ukraine's GDP, at the end of the period it is $2.31 billion, and accordingly 2.5% of GDP, with a significant increase in growth in 2014, an increase of more than 2 times. The positive point is that the growth of IT services exports is observed in both national currency and in dollar terms, taking gradually more and more serious positions in the share of Ukraine's GDP, becomes significant in the process of forming export potential. The export of telecommunications, computer and information services directly in the formation of Ukraine's GDP does not play a big role, having a maximum value of 0.1% in 2014. The main source of revenue for the telecommunications services industry is outsourcing and out-staffing services. In most cases, Ukrainian specialists are remote executors of orders of large foreign companies. In 2015, Ukraine strengthened its position by rising to a global ranking of outsourcing in 2015 to 24 seats. Since 2016, Ukraine is one of the TOP-25 best countries in the field of outsourcing (Mitchenko, 2016).

The problems of the success of the industry development are the absence of a stable tax policy, organizational, economic, and regulatory uncertainty, as well as the lack of incentives and support from the state.
The uniqueness of telecommunications services is that they are a component of modern economic infrastructure at not only the national level, but also form the basis for the development of international business and international economic relations. ICTs enable developing countries to use their functional features to stimulate the national economy through the development of this field of activity. The most successful examples include the economy of Ireland, the leader of many international ratings in the field of ICT, or the developing economy of India, which has one of the largest silicone valleys in the world. For Ukraine, the development of this industry can also serve as a driver, the starting point for the growth of the national economy (Gaponenko, 2018).

**DISCUSSION AND CONCLUSIONS**

Ukraine is subject to the phenomenon of "digital divide". However, to determine its level, generalized indicators have not been developed. Because of this, the study compiled separate characteristics of the standard of living in the country, the development of the ICT industry and general economic development. Comparative analysis showed that with a low standard of living, which in itself is an obstacle to the development of the telecommunications industry, as one of the high-tech, and therefore expensive, successful development of the ICT industry.

On the one hand, this reduces the threat of a "digital divide" and increases Ukraine's chances of stable development. On the other hand, a lack of investment in the industry, in the end, may lead to a sharp increase in information inequality. In the future, digital inequality can become another factor that increases the socio-economic gap between developed countries and the rest of the world.

In Ukraine, the body regulating organizational and economic activities in the sphere of telecommunications development is successfully operating (11), but further development requires more comprehensive national management decisions.

Effective use of the info-communication resource becomes decisive in the development of the national economy. This resource affects not only the economy and politics, but also the emergence of new, social problems. Especially noticeable are "digital divides" in countries with insufficiently high levels of economic development.

**REFERENCES**


