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разработки отдельной для этой сферы экономики стратегии ресурсосбережения. Предоставлены примеры экономической эффективности разработанной стратегии ресурсосбережения для сельскохозяйственных предприятий, которые были уже апробированы в трех областях Полтавской области. Применение представленной стратегии даст устойчивый рост конечных результатов функционирования агропромышленного комплекса страны, реализацию основных направлений обеспечения продовольственной безопасности страны.

Ключевые слова: ресурсосберегающее развитие, стратегия ресурсосбережения, ресурсоиспользование в АПК, предприятия АПК, ресурсосберегающий механизм.

ОСОБЕННОСТИ РАЗРАБОТКИ И АПРОБАЦИИ СТРАТЕГИИ РЕСУРСОСБЕРЕЖЕНИЯ В АПК

Обосновано особенности ресурсосбережения для агропромышленного комплекса, и соответственно – необходимости

Gerasymchuk Nataliia, Doctor of Economic Sciences, Associate Professor, Department of Economic Analysis and Audit, University of State Fiscal Service of Ukraine, Irpen, Kyiv region, Ukraine, e-mail: 90999nag@gmail.com, ORCID: <http://orcid.org/0000-0002-3931-5320>

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**Striy L.,
Yepifanova I.,
Orlovskiy B.,
Sobirov Sh.,
Miralibekov B.**

MARKET OF COMMUNICATION AND INTERNET SERVICES: RESEARCH OF COMPETITIVE ENVIRONMENT

Викладено результати аналізу показників економічної діяльності підприємств ринку послуг зв'язку та інтернет послуг, який формується, виконана сегментація ринку. Встановлено, що доходи всіх підприємств ринку послуг зв'язку та інтернет послуг в 2016 році зросли. Виявлено тенденцію перерозподілу доходів і частки ринку від підприємств, що надають послуги зв'язку, до підприємств, які надають інтернет послуги. Досліджено конкурентне середовище ринку шляхом розрахунку індексу Н Херфіндаля-Хіршмана (ННІ – Herfindahl-Hirschman index).

Ключові слова: частка ринку, індекс Херфіндаля-Хіршмана, інтернет послуги, конкурентне середовище, послуги зв'язку.

1. Introduction

Creation and development of mobile Internet, new mobile communication devices (smartphones, tablets and others) ensured the possibility of free access to the use of diverse Internet resources for virtually all residents of the country. Granting of services of access to the Network (Internet services) became economically advantageous for enterprises. The segment of Internet services in the communications services market is growing rapidly. It can be assumed that a new market for communication services and Internet services has already been formed. Steady demand for access to Internet resources stimulates the rapid development of this market. Free access of new enterprises to this market causes an increase in competition. However, available scientific publications on the study of the problem of the state and directions of the market development for communication services and Internet services, as well as the state of the competitive environment in this market is clearly not enough. This explains the relevance of the study of this problem and, accordingly, the topic of the article.

2. The object of research and its technological audit

The object of research is the process of formation and development of the market of communication and Internet services in Ukraine, as well as the state of its competitive environment and the development trend.

It should be noted that formation and development of the market under investigation occurs in the context of the convergence of information and communication technologies, the formation of global communications infrastructure, and the digitalization of the economy. These factors significantly affect the economic activity of communication enterprises and the organization of market institutions in Ukraine, which must be taken into account.

3. The aim and objectives of research

The aim of research is analysis of the results of economic activity of enterprises in the market of communication and Internet services in Ukraine in recent years, the trends

in development of the market and the assessment of the competition state.

To achieve this aim, the following objectives are set and solved:

1. To conduct a study of the structure, current state and trends in the development of the market for communication and Internet services.

2. To conduct a study of the state of the competitive environment in the market of communication and Internet services by calculating the Herfindahl-Hirschman index.

4. Research of existing solutions of the problem

Some aspects of this problem are considered in monographs [1, 2]. In the monograph [1] the model of the system of markets for information and communication services and their interaction is presented and justified [1]. In the monograph [2] the formation of the markets of information and communication services and the modern structure of these markets are investigated [2]. In the article [3] some results of studies of the development of the competitive environment in the market of communication services of Ukraine for the period 2000–2015 are presented. The conclusion is drawn that the competitive environment of the communication services market of Ukraine in this period corresponds to the market with free competition. The article [4] is devoted to the presentation of the results of the research of modern approaches to the choice of organizational structures and the network model of the organization of the information and communication industry markets, and the scheme of the market organization model is presented. The article [5] presents the results of a comprehensive study of the economic activities of telecommunications enterprises in Ukraine in 2015–2016 and the directions of their development. An assessment of the state of the competitive environment in the markets of telecommunications services is carried out. It is established that in 2016 there was a favorable tendency to improve the performance of telecommunications enterprises. It is concluded that telecommunications enterprises can fully ensure the performance of communicative functions in the emerging global information and communication services. In this article, the segment of Internet services is not analyzed in detail and the market of communication and Internet services is not being explored, which is currently being formed. It can be considered that this article is, in a sense, a continuation of this research in the direction of studying the relationship between the segment of Internet services with segments of telecommunications services and other segments of communication services in a new emerging market.

5. Methods of research

The methodological basis of the research consists of a set of methods and principles of scientific research, scientific works of domestic and foreign scientists on the problems of the telecommunications development [1–6]. To solve the objectives of this research, methods of economic, marketing and competitive analysis are used. When studying the state of the competitive environment in the market of telecommunication services, the Herfindahl-Hirschman index H is calculated according to the methodology proposed by Prof. V. Granaturov and S. Vorobiyenko in [7],

taking into account the provisions set forth in [8]. The information base of the research is statistical data of the State Statistics Service of Ukraine [9], information of the National Commission for the State Regulation of Communications and Informatization [10], data published on the websites of telecommunications operators of Ukraine [11–14], other available Internet resources.

6. Research results

6.1. Research of the market structure of communication and Internet services and the development dynamics of Internet services segment. *Market structure research.* In the article «Enterprises of telecommunications in Ukraine: a study of the current state and development trends», the authors identify the following segments of the telecommunications market:

- a segment of traditional telecommunications companies (mobile operators and fixed telephony operators);
- a segment of Internet providers and other telecommunications companies that provide Internet services;
- a segment of companies that broadcast programs of on-air, cable and satellite TV;
- a segment of other enterprises in the telecommunications market [5].

The modern market of communication and Internet services is formed by merging into a single global network structure of all enterprises that can provide consumers with communication services, Internet services and information and communication services. The network organization of the market is most effective, it is characterized by high efficiency, it is able to ensure effective interaction of producers, intermediaries and consumers and rapid adaptation of the organization to changes in the external environment [4].

Let's assume that the structure of the emerging market of communication and Internet services, according to the meaning of its name should include all enterprises competing in the provision of communication services and Internet services.

Table 1 shows the types of services that can provide mail and communication enterprises to consumers.

Analysis of the table from the point of view of the possibility of providing Internet services to consumers allows to conclude that the structure of the market for communication and Internet services should include all the enterprises (companies) listed in the table. All these enterprises (companies) can compete in the field of providing communication services and Internet services.

Development dynamics of Internet services segment. The term «Internet services» was first used in statistical information in 2016. In previous years, the State Statistics Service of Ukraine in the section «computer communications» in a separate line showed «Internet access services» [9]. Therefore, in this article in the semantic content of the concept of «Internet services» let's understand the activity of connecting the terminal (computer, smartphone and any other) of the consumer to the Internet.

With the growth in the number of Internet users, the development of 3G and 4G mobile operators, and the mobile Internet, the demand for Internet services and, accordingly, the profit of enterprises from providing these services will grow. Also, the share of Internet services in the market of communication and Internet services will increase and, accordingly, the market share of other services will decrease.

Table 1

Services that can provide mail and communication enterprises

Enterprises (companies)	Services
Mobile communication enterprises	Mobile communication services Fixed telephony services Internet services (Internet access services) Information and communication services Advertising Other services
Fixed telephony enterprises:	Fixed telephony services Mobile communication services Internet services (Internet access services) Information and communication services Advertising Other services
Internet Service Providers and other telecommunication companies	Internet services (Internet access services) Telephone services Information and communication services Advertising Other services
Terrestrial and cable television enterprises	Analog and digital TV services Internet services (Internet access services) Telephone services Information and communication services Advertising Other services
Postal service enterprises	Internet services (Internet access services) Telephone services Information and communication services Advertising Other services

Note: own development of authors using information sources [9–14].

Table 2 shows the dynamics of revenues from the provision of Internet services in comparison with the revenues of mobile communication services (the largest market segment).

Fig. 1 shows the dynamics of changes in the market share of mobile services and the share of Internet services (%) in the period from 2011 to 2016.

Table 2

Dynamics of revenues from the provision of Internet and mobile services

Types of services	2011	2012	2013	2014	2015	2016
Mobile communication services, billion UAH	31	31.5	31.4	31.4	33.2	34.1
Internet services, billion UAH	4.3	4.6	4.9	5.3	6.1	9.1

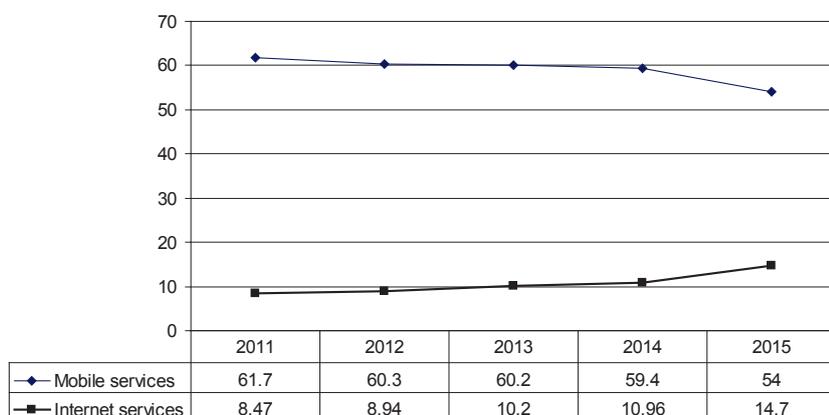


Fig. 1. Dynamics of changes in the share of the mobile communication services market and the share of Internet services in the period from 2011 to 2016, %. **Note:** own development of authors using data published by the Ukrainian State Statistics Service [9]

Analysis of the data presented in Table 2 and in Fig. 1 shows that the share of the Internet services market has increased over 5 years: in monetary terms more than doubled, in percentage terms – increased by 6.23 %. Accordingly, the share of mobile communication services increased in money terms by 1.4 times, but the percentage decreased by 5.4 %. In 2016, the share of fixed-line telephony services decreased by 3.7 % compared to the previous year.

Thus, the segment of Internet services in the communications services market is dynamically developing.

6.2. Research of the competitive environment in the market of communication and Internet services. In this article, research of the competitive environment in the market for communication and Internet services is conducted to assess the state of competition in the market and to identify the degree of market concentration.

In international practice, the assessment of the competition state and the market concentration degree is carried out by calculating the Herfindahl-Hirschman index H . The main advantage of the index is the ability to react quickly to any internal market changes [8].

In several spheres of the economy, there are also several different methods for studying the competitive environment. This article explores a market in which telecommunications enterprises are dominant. Therefore, the authors decided to apply the methodology developed by Prof. V. Granaturov and S. Vorobiyenko in the monograph «Analysis of the competitiveness of telecommunications services» [7].

Calculation of Herfindahl-Hirschman index H is carried out according to the formula:

$$H = \sum_{i=1}^n d_i^2, \quad (1)$$

where d_i – the market share of the i -th enterprise,%; n – number of enterprises on the market.

To assess the compliance of the competitive environment of a particular market model, the calculated value of the index H is compared with the following limits:

- if $H=10000$, then the state of competition corresponds to the market of pure monopoly;
- if $1800 \leq H \leq 10000$, then the market can be considered potentially competitive;
- if $H < 1800$, there is free competition on the market.

Table 3 provides information on the performance of enterprises of all segments of the market for communication and Internet services in Ukraine for 2016–2015 and calculated market share for 2015–2017. For 2017, the results of calculations are performed according to official data published by the State Statistics Service of Ukraine [9], and indicative information from the sites of telecom operators [11–14].

Analysis of revenues received by communication enterprises and Internet services shows that mobile communication enterprises, postal enterprises, television enterprises (in particular, cable TV operators) improved their performance in 2016: the revenues of mobile communication enterprises increased by

2.63 %; postal communication enterprises – by 16.69 %, television enterprises – by 13.90 %. Fixed telephony enterprises have reduced their indicators (this is a worldwide trend). Enterprises providing Internet services increased their revenues by 48.47 %. In general, the revenues of all enterprises in the market of communication services and Internet services increased by 12.32 % in 2016. The market has developed a favorable trend of economic growth, caused by the growing demand for Internet opportunities. This conclusion confirms the results of a study of the current state and directions of the breakdown of telecommunications of Ukraine, published by the authors in [5].

7. SWOT analysis of research results

Strengths. The strong point of the conducted research is the executed analysis of the results of the economic activity of enterprises in the emerging market of communication and Internet services. The term «Internet services» (and the corresponding column in the table) is first mentioned in the state statistical information of Ukraine in 2016. The research also evaluates the state of competition in this market.

Weaknesses. The weak side of the conducted research is the use in the process of calculating the parameters of

Table 3

Development dynamics of the competitive environment

Enterprises		Revenues from the provision of services, billion UAH		Market share, %		
		2016	2015	2017	2016	2015
Market, in general		60.9646	54.2778	100 %	100 %	100 %
<i>Mobile communication enterprises, in general</i>		34.0771	33.2056	55.78 %	55.89 %	60.84 %
1	Kyivstar	14.960	13.475	24.43 %	24.54%	24.84%
2	Vodafone	11.1	10	18.54 %	18.21 %	18.42 %
3	Lifecell	4.84	4.48	7.91 %	7.94 %	8.25 %
4	Other mobile operators	3.771	5.2506	4.9 %	5.2 %	9.33 %
Enterprises of fixed telephony, in general		6.5184	7.8451	10 %	10.69 %	14.43 %
5	Ukrtelecom	3.2960	3.231	5.71 %	5.41 %	5.95 %
6	Other fixed telephone companies	3.3154	4.5267	4.29 %	5.28 %	8.48 %
7	Internet service providers and other telecommunications companies providing Internet services	9.1018	6.1305	17.19 %	14.93 %	11.29 %
8	Enterprises of postal service	3.9977	3.426	4.55 %	6.56 %	6.3 %
TV companies, in general		2.7687	2.4308	4.79 %	4.54 %	4.52 %
9	Terrestrial TV operators	1.1086	0.8858	1.89 %	1.82 %	1.63 %
10	Cable TV operators	1.6298	1.5450	2.9 %	2.72 %	2.89 %
11	Other enterprises	4.5009	1.2398	7.69 %	7.39 %	2.62 %
<i>HHI – Herfindahl-Hirschman index</i>				1461	1412	1404

Note: own development of authors using information sources [9–14].

The values of the Herfindahl-Hirschman index H (Table 3), calculated for 2015 (1404), for 2016 (1412) and for 2017 (1461), are within the limits of « $H < 1800$ ». This means that the market of communication and Internet services in Ukraine corresponds to the market model with free competition. Some increase in the value of the index H is due to the increase in the concentration of services in the segment «Internet Service Providers and Other Telecommunications Companies Providing Internet Services» (Table 3).

The high demand for Internet services (in particular, access to the Network) will undoubtedly contribute to an increase in the level of competition in the market under investigation, which in theory corresponds to the characteristics of a market model with free competition.

the competitive market environment for the performance of the market segments as a whole, and not the individual enterprises in this segment (due to the lack of available statistical sources of information on the performance of these enterprises), which prevented more precise calculations of the HHI index, resulting in a somewhat lower level of competition. However, the conclusion about the market model is correct.

Opportunities. The further use of research results can allow performing analysis of the processes of transformation of market activity methods of enterprises in the developing market of communication and Internet services and formulate recommendations for increasing the efficiency of enterprises in a competitive environment.

Threats. Threats to the effectiveness of the use of research results are rapid changes in market situations caused by modern economic transformations, which requires a continuous analysis of these changes and the adaptation of the proposed recommendations to the changed conditions.

8. Conclusions

The study of the results of economic activity of enterprises in the market of communication services and Internet services in Ukraine in recent years, trends in market development and the state of competition allows to draw the following conclusions.

1. Investigation of the structure, current state and trends in the development of the market for communication and Internet services makes it possible to:

- market segmentation;
- identify a favorable trend of economic growth caused by the growing demand for Internet services, which are due to the development and use of mobile Internet;
- the tendency of redistribution of revenues and market share from enterprises providing communication services to enterprises providing Internet services.

The main factor of the significant growth in the revenues of enterprises in the segment of Internet services (2016 – 48 %) is the impact of new more efficient technologies: the transition to the use of 3G technology, the introduction of mobile Internet technologies.

2. The study of the state of the competitive environment in the market of communication and Internet services, performed by the method of calculating the Herfindahl-Hirschman index H , allows to assert that in this market there is free competition. A high level of competition is ensured by the steady demand from Internet users of Ukraine for access to Internet resources, which stimulates enterprises to develop this market.

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РЫНОК УСЛУГ СВЯЗИ И ИНТЕРНЕТ УСЛУГ: ИССЛЕДОВАНИЕ КОНКУРЕНТНОЙ СРЕДЫ

Изложены результаты анализа показателей экономической деятельности предприятий формирующегося рынка услуг связи и интернет услуг. Выполнена сегментация рынка. Установлено, что доходы всех предприятий рынка услуг связи и интернет услуг в 2016 году возросли. Выявлена тенденция перераспределения доходов и доли рынка от предприятий, предоставляющих услуги связи, к предприятиям, оказывающим интернет услуги. Исследована конкурентная среда рынка путем расчета индекса H Херфиндаля-Хиршмана (HHI – Herfindahl-Hirschman index).

Ключевые слова: доля рынка, индекс Херфиндаля-Хиршмана, интернет услуги, конкурентная среда, услуги связи.

Striy Lyubov, Doctor of Economics Sciences, Professor, Department of Enterprises Economics, Odessa National Polytechnic University, Ukraine, e-mail: striyla@ukr.net, ORCID: <http://orcid.org/0000-0003-4683-1806>

Yepifanova Irina, PhD, Associate Professor, Department of Enterprises Economics, Odessa National Polytechnic University, Ukraine, e-mail: epifodessa@gmail.com, ORCID: <http://orcid.org/0000-0002-4564-688X>

Orlovskiy Boris, Department of Enterprises Economics, Odessa National Polytechnic University, Ukraine, ORCID: <http://orcid.org/0000-0002-2510-7950>

Sobirov Shukhrat, Department of Enterprises Economics, Odessa National Polytechnic University, Ukraine, ORCID: <http://orcid.org/0000-0001-7518-2548>

Miralibekov Behrouz, Department of Enterprises Economics, Odessa National Polytechnic University, Ukraine, ORCID: <http://orcid.org/0000-0002-3913-9929>