

Електронний журнал «Ефективна економіка» включено до переліку наукових фахових видань України з питань економіки (Категорія «Б», Наказ Міністерства освіти і науки України № 975 від 11.07.2019). Спеціальності – 051, 071, 072, 073, 075, 076, 292. Ефективна економіка. 2022. № 10.

DOI: <http://doi.org/10.32702/2307-2105.2022.10.23>

УДК 654.01:338.47

V. Alkhimova,

*Postgraduate student of the Department of Marketing, Management, Public
Management and Administration,*

State University of Intellectual Technologies and Communications

ORCID ID: <https://orcid.org/0000-0001-7302-6031>

T. Tardaskina,

*PhD in Economics, Associate Professor of the Department of Marketing,
Management, Public Management and Administration,*

State University of Intellectual Technologies and Communications

ORCID ID: <https://orcid.org/0000-0003-3818-7029>

MODEL OF ECONOMIC DEVELOPMENT OF MOBILE OPERATORS AND INTERNET PROVIDERS OF UKRAINE

В. В. Алхімова,

*аспірант кафедри маркетингу, менеджменту, публічного управління та
адміністрування,*

Державний університет інтелектуальних технологій і зв'язку

Т. М. Тардаскіна,

*к. е. н., доцент кафедри маркетингу, менеджменту, публічного управління та
адміністрування,*

Державний університет інтелектуальних технологій і зв'язку

МОДЕЛЬ ЕКОНОМІЧНОГО РОЗВИТКУ МОБІЛЬНИХ ОПЕРАТОРІВ ТА ІНТЕРНЕТ-ПРОВАЙДЕРІВ УКРАЇНИ

The national society is transformed into a global information society due to the active development of the telecommunication sphere, in particular mobile and fixed communication, broadband access, transmission and reception of television and radio programs, wire broadcasting, etc. At the same time, in the sphere of telecommunications, the special role belongs to mobile operators and Internet providers, whose services are the most demanded in connection with the rapid transformation of the Ukrainian society based on the convergent unification of information and telecommunications into an electronic-information society. Therefore, the research is oriented on the systematic study of the model of economic development of mobile operators and Internet providers. Within the framework of the study, it is noted that under the model of economic development we understand the basic vision of mobile operators and Internet providers concerning the processes of economic development in general, which they offer for realization. By types, such models can be attributed to production, financial, innovation, marketing, information, communication, etc. According to the results of the research, it is proved that the models of economic development of mobile operators and Internet providers considerably varied in connection with different segments and ranges of services for subscribers. However, since 2016 this difference has gradually disappeared. The authors pay attention to the fact that mobile operators, as subjects of telecommunication, are oriented toward the innovative production and/or financial processes of economic development. Internet providers, as domestic telecommunication entities, orient their economic development processes on marketing and/or information communication. The prospects for further research lie in the development of a general model of economic development of the telecommunication sphere and its system description.

Вітчизняне суспільство трансформується до глобального інформаційного, що відбувається внаслідок активного розвитку сфери телекомунікацій, зокрема мобільного та фіксованого зв'язку, широкосмугового доступу, передавання і приймання телевізійних і радіопрограм, дротового мовлення тощо. При цьому останнім часом, у сфері телекомунікацій, особлива роль належить саме мобільним операторам та інтернет-провайдерам, послуги яких є найбільш популярними у зв'язку зі швидким перетворенням українського суспільства, на основі конвергентного об'єднання інформатизації та телекомунікації, в електронно-інформаційне суспільство. Відтак дослідження

орієнтоване на системне вивчення моделі економічного розвитку мобільних операторів та інтернет-провайдерів. В межах дослідження зазначено, що під моделлю економічного розвитку ми розумітимемо основне бачення операторів мобільного зв'язку та інтернет-провайдерів, щодо процесів економічного розвитку в цілому, які вони пропонують для реалізації. За типами, до таких моделей можна віднести виробництво, фінансові, інноваційні, маркетингові, інформаційні, зв'язок тощо. За результатами дослідження доведено, що моделі економічного розвитку мобільних операторів та інтернет-провайдерів значно варіювалися у зв'язку з різними сегментами та діапазонами послуг для абонентів. Проте з 2016 р. ця різниця поступово зникає. Звернено увагу на той факт, що оператори мобільного зв'язку, як суб'єкти телекомунікацій, орієнтовані на інноваційне виробництво та/або фінансові процеси економічного розвитку. Це зумовлене необхідністю залучення більшої кількості клієнтів в наявних і нових сегментах або мінімізації витрат ресурсів. Інтернет-провайдери, як вітчизняні телекомунікаційні суб'єкти, орієнтують свої процеси економічного розвитку на маркетинг та/або інформаційну комунікацію. Це зумовлене одноманітністю послуг доступу і передачі даних для певних інформаційних каналів і наявністю значної кількості економічних суб'єктів. Перспективи подальших досліджень полягають у розробці загальної моделі економічного розвитку телекомунікаційної сфери та її системного опису.

Key words: telecommunication sphere; Internet providers; telecommunication subjects; mobile operators.

Ключові слова: сфера телекомунікацій; інтернет-провайдери; телекомунікаційні суб'єкти; оператори мобільного зв'язку.

Problem setting (description of the problem being analyzed in general and its connection with important academic or practical tasks). The national society is transformed into a global information society due to active development of telecommunication sphere, in particular mobile and fixed communication, broadband access, transmission and reception of television and radio programs, wire broadcasting, etc. At the same time, mobile operators and Internet providers have a

special role in the sphere of telecommunications. This is because their services are the most demanded in connection with the rapid transformation of Ukrainian society (based on information and telecommunications convergent unification) into an electronic-information society. Since such a society does not just need a developed information space but is consolidated on the availability of different types of information and possibilities to stay connected, unique models of mobile operators and Internet providers' economic development are formed. In particular, at the beginning of 1990 the basis of this model was earnings on voice communication, then on SMS, now it is data transfer of data-subscribers, including voice and video communication. In addition, in recent years, Ukrainian mobile operators and Internet providers have significantly intensified their store network development.

The analysis of the last research and publications in which the solution to this problem is begun. Among those in which the solution to the problem of studying economic development models is started of mobile operators and Internet providers, we have selected positions formed: Varfolomeeva O.G., Kolchenko T.V. [1], Kulinyak I.Ya., Pryima L.R., Shpak O.H. [2], Semenko, S. S. and Novyкова, I. V. [4]. Namely, the authors are guided by the outlined ideas. At the same time, the problem is the fragmentation of research and its description, which does not allow us to fully define the essential development vision, typical for mobile operators and Internet providers. Thus, this is the issue of the article.

The wording of the purposes of article (problem). The above-mentioned objective of the article is to study the model of economic development of mobile operators and Internet providers.

The paper's main body with full reasoning of academic results. Within the framework of this study, under the economic development model, we will understand the basic vision of mobile operators and Internet providers regarding the processes of economic development in general, which they propose for implementation [2]. By types, such models can be attributed to production, financial, innovation, marketing, information, communication, etc.

The specific thing is that until recently, regardless of the nature of the economic model of mobile operators and Internet providers' development, considerably varied among themselves due to different segmentation (which was shared by mobile subscribers and data-subscribers) and a range of services for subscribers. However, since 2016 (which was a period of active transition of mobile operators to 3G networks within the mobile Internet services have improved, so 30,7% of mobile subscribers with symphonies have also become data subscribers) difference has gradually disappeared. We believe that in the future mobile operators can absorb the Internet provider's segment. In particular, some mobile operators are already recognized as Internet providers in Ukraine. Also, there is a diversity of development models. We will consider the models outlined in more detail.

The mobile operator, as a subject of the telecommunication sphere, focuses its innovation-production development (offering numerous services of cellular and other communication subscribers services for mobile phones) and/or financial processes (reducing the cost of the services). This is due to the need to attract more customers in existing and new segments or to reduce resource requirements. For example, Kyivstar, Vodafone Ukraine, and lifecell are the main operators, oriented on innovative production and financial development (together they occupy more than 97% of the mobile communication market in Ukraine and are oriented on GSM, UMTS, and LTE technologies). The other 3% of mobile operators are oriented toward product development due to CDMA, GSM/GPRS/edge of other operators (such as Intertelecom, 3Mob, Lycamobile Ukraine, Yezzz!, and PEOPLEnet). This 3% seeks to minimize the cost of all resources and reduce the cost-of-service production. The structure of the mobile operator's market in 2021 is shown in Figure 1. Thus, the above mobile operators form their development models on different approaches to providing and nomenclature list of cellular communication services:

- 1) only for mobile subscribers. The mobile operator uses technologies available at his disposal (multiplexing, i.e. simultaneous data transmission in the common radio frequency range (CDMA network), UMTS/HSPA operating in UMTS (own network), GSM/GPRS (packet radio transmission)/edge (Vodafone Ukraine

network)), can only expand the range of classical services of cellular communication, among which: classic voice call and autoresponder providing services of automatic recording of incoming calls in absence of the subscriber); roaming (providing services of permanent communication to the data-subscriber who is outside the zone of coverage of the "home" network using resources of another mobile operator); receiving and transmission of short text messages (SMS); receiving and transferring multimedia messages - pictures, music, video (MMS-service).

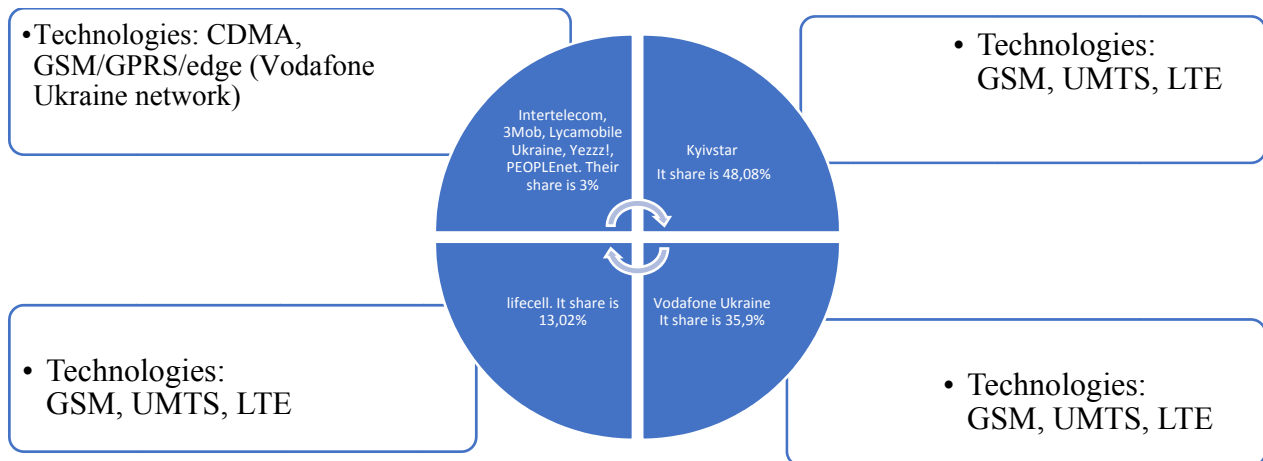


Fig.1. Structure of the market of mobile operators in Ukraine, 2021, %

Source: formed according to mobile operators' data

The specific feature of the restated model of development is that the majority of all classic services of such mobile operators are fees because they are not only the main source of revenues but also based on networks of other operators. A typical example is the "ThreeMobs" (doing business as 3Mob), which has its own UMTS network only in Kyiv, outside of which Vodafone Ukraine operates. The operator provides services of a classic voice call, as well as bilateral national and international roaming. The specific thing is that such operators are implementing related development measures aimed at the development and optimization of the schedule of resource needs; implementation of effective methods of resource inventory regulation, etc.;

2) for mobile subscribers and data subscribers. The mobile operator based on the technologies available at his disposal (global system of mobile communication (GSM networks), universal mobile telecommunication system (UMTS), and 4G LTE (4G networks), etc.) can realize production, innovation, and financial development. In particular, such mobile operator aspires to use hybrid models of economic

development, which combine expansion of the range of classic and innovative services of cellular and other communication, their cheaper, search for new reserves of growth of profit, etc. The content of hybrid models of mobile operators' economic development is given in Table 1.

Table 1. The content of hybrid models of mobile operators' economic development

Product development (activities)	Innovation development (activities)	Financial development (activities)
Extension of the range of classic services: voice call and autoresponder; roaming; AVN; SMS-service; MMS-service; Extension of the range of innovative services: smartphone banking ¹ , special services for business and organizations, population, Internet and possibilities to spread the Internet from mobile phone to laptops and other phones, IP-telephony, video reports and video conference, transmission and reception of TV and radio programs; Related development activities aimed at the development and optimization of resource needs schedule; implementation of effective methods of resource inventory regulation, etc.	Formation and development of investment projects portfolio in areas: mobile financial services (MFS), Internet TV, 5G networks development, gaming, etc.; Related development activities: development, launching, and expansion of the range of innovative services, transition to innovative methods of production and economic activity, etc.	Reducing the cost of services; finding new reserves to increase profits due to new services and new consumers; optimization of expenses on resources, production, wages, etc.

¹ Rendering of services on increasing mobility of conducting business according to the concept "Bank on the palm" and provides round-the-clock, mobile, and full-function access of the client to the full range of services by electronic channels

Source: formed according to mobile operators' data and [2; 3]

With the help of hybrid models of economic development, operators attract more clients on already existing and in new segments. Among the advantages of models is a gradual combination of services of mobile operator and Internet provider allows [1; 5]:

- 1) subscribers to get free access to important programs, free Internet, or even free mobile calls, which attract new clients;
- 2) the operator to introduce scientific and technical progress results into the activity and increase the overall profitability of services.

For example, Kyivstar offers its clients free access to KyivstarTV and Star.Docs service for businesses and organizations, possibility to give Internet from mobile phone to laptops and other phones. Vodafone provides free thousands of minutes and 10 GB of the Internet, the possibility to spread the Internet from a mobile phone to laptops and other phones, free programs "DiyTV", "DiyRadio" etc. Lifecell provides for free use for 30 days from the moment of connection of 5 GB of the Internet and 30 minutes for all mobile and fixed-line numbers in Ukraine, etc. In addition, lifecell is the only operator that offered clients two technologies of the Internet of things (LoRaWAN and NB-IoT).

The Internet provider, as a subject of the telecommunication sphere, focuses its economic development processes on marketing and/or information communication. This is stipulated by:

- 1) the monotony of services in providing access and transfer of information on certain information channels (based on standard technology FTTB (Fiber to the Building));
- 2) the existence of a large number of economic entities (among them Ukrtelecom, Kyivstar, Volia, Triola, Frigate, etc.).

Thus, the structure of the Internet providers market in 2021 is shown in Figure 2.

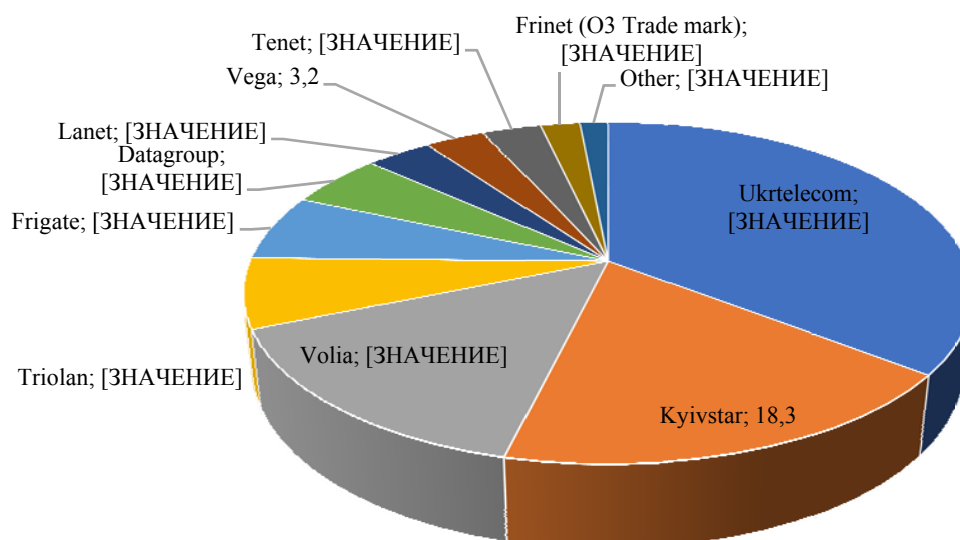


Fig.2. Structure of the Internet providers market, 2021, %

Source: formed according to the Internet providers data

According to the above-mentioned specificity of the pre-listing, the only possibility is to select marketing and/or information-communication models of Internet providers' economic development (the content of which is given in Table 2).

Table 2. Content of marketing and/or information-communication models of Internet providers economic development

Marketing development (activities)	Information and communication development (activities)
Improvement of uniform services ¹ of providers according to market needs; development of new segments of the telecommunication market or other digital commercial services market in general ² ; diversification of activities; a search of consumers in new segments	Information support of the provider's activity creation; automation of the process of attraction, processing, storage, and client information used; optimization of the structure of the information-communication system used by the provider.

¹ providing services: access to the internet by a communication line connected; provision of disk space for storing, and maintenance of websites; support of e-mail boxes or virtual mail server services; location of clients' equipment on their technical facilities and communication lines; lease of separate and virtual servers, data reservation, etc.

² other digital commercial services provisions

Source: According to Internet providers and [2; 3; 6]

The marketing model of economic development is the main one because in conditions of significant homogeneous services Internet providers are in a highly competitive environment (which gradually includes mobile operators, in particular, Kyivstar). Thus, this development is a priority, if possible, to reduce significantly the impact of the competitive environment through measures to improve existing services and diversify activities in other sectors of telecommunications (including transmission and reception of television and radio programs, wire broadcasting, etc.) and digital commercial services (including cyber security, video surveillance, access control, etc.). In addition, through marketing models of economic development providers attract an additional number of clients in new segments.

For example, Triolan Group not only offers broadband Internet access services but also cable TV services. In addition, in new segments, the group provides video surveillance and access control systems for multi-apartment buildings. Datagroup offers broadband Internet access services and operates in the segments of corporate networks, access to banking services, and DataProtect Cybersecurity. Lanet network offers broadband Internet access services and operates in segments of the video

surveillance system, delivery of IP signal streams and broadcasting organization (CDN), etc.

Among the possible advantages of the outlined models of economic development is the constant improvement of technique, and technology, for production needs (since the presence of physically worn and morally outdated production funds leads to the narrowing of the client base in the competitive environment).

If it is not possible to reduce the influence of the competitive environment for the Internet provider (no technical or other possibilities), information and communication development is applied allows ensuring the efficiency of management decisions. Advantages are timeliness of information display of processes, and the possibility of their modeling, analysis, and forecasting.

Conclusions on this research and prospects of further examination in this direction. Within the framework of the study, it is noted that under the model of economic development we will understand the basic vision of mobile operators and Internet providers, as to the processes of economic development in general, which they propose for realization. By types, such models can be attributed to production, financial, innovation, marketing, information, communication, etc. According to the results of the study, it is stated that:

1. Until recently, regardless of the specific nature of the model of mobile operators and Internet economic development providers varied considerably in connection with different segments and ranges of services for subscribers. However, since 2016 this difference has gradually disappeared. We believe that in the future mobile operators can absorb the Internet provider's segment. In particular, some mobile operators are already recognized as Internet providers in Ukraine. Also, there is a diversity of development models.
2. Mobile operators, as domestic telecommunications subjects, are oriented on innovation production and/or financial processes of economic development. This is due to the need to attract more clients in existing and new segments or to minimize resource requirements;

3. Internet providers, as domestic telecommunications entities, orient their economic development processes on marketing and/or information communication. This is due to the monotony of access and transfer services for certain information channels; and the presence of a significant number of economic actors.

The prospects for further research lie in the development of a general model of economic development of the telecommunications sphere and its system description.

Література

1. Варфоломеева О. Г., Колченко Т. В. Нові підходи до управління телекомунікаційними мережами, Наукові записки УНДІЗ, 2013, Вип. №1(25), С. 41–44.
2. Кулиняк І.Я., Прийма Л.Р., Шпак О.Г. Напрями розвитку підприємства в умовах динамічного середовища, Науковий вісник Ужгородського університету : Серія: Економіка, 2012, Вип. 3 (37), С. 55–58.
3. Олійник Д. І. Методологічні підходи до визначення та аналізу ринків телекомунікаційних послуг в Україні, Зв'язок, 2007, Вип. №5(73), С. 2 - 6.
4. Семенко С. С., Новикова І. В., Характеристика методів управління підприємствами галузі телекомунікацій, Ефективна економіка № 6, 2014
URL.: <http://www.economy.nayka.com.ua/?op=1&z=3110>
5. Франчук О. П. Вплив управління послугами телекомунікаційних компаній на розвиток національної економіки, Науковий вісник Ужгородського національного університету, 2015, Вип. 3., С. 181-183.
6. Шапошников К. С. Convergent development infocommunication operators in the national economy, Науковий вісник Херсонського державного університету. Серія: Економічні науки, 2014, Вип. 4, С. 81–85.

References

1. Varfolomeeva, O.G. and Kolchenko, T.V. (2013), "New approaches to the management of telecommunication networks", *Naukovi zapysky UNDIIZ*, Vol. 1(25), pp. 41–44.
2. Kulinyak, I.Ya., Pryima, L.R. and Shpak, O.H. (2012), "Directions of enterprise development in a dynamic environment", *Naukovyy visnyk Uzhhorods'koho universytetu*, Vol. 3 (37), pp. 55–58.
3. Oliynyk, D.I. (2007), "Methodological approaches to the definition and analysis of telecommunication services markets in Ukraine", *Zvyazok*, Vol. 5(73), pp. 2 - 6.
4. Semenko, S. S. and Novykova, I. V. (2014), "Characteristics of management methods of enterprises in the telecommunications industry", *Efektivna ekonomika*, Vol. № 6, available at: <http://www.economy.nayka.com.ua/?op=1&z=3110> (Accessed 25 Sept 2022).
5. Franchuk, O.P. (2015), "The impact of the management of services of telecommunications companies on the development of the national economy", *Naukovyy visnyk Uzhhorods'koho natsional'noho universytetu*, Vol. 3, pp. 181-183.
6. Shaposhnikov, K. S. (2014), Convergent development infocommunication operators in the national economy, *Naukovyy visnyk Khersons'koho derzhavnoho universytetu*, Vol. 4, pp. 81–85.

Стаття надійшла до редакції 06.10.2022 р.