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TÍTULO: Evaluación de la competitividad de los sujetos del mercado de servicios de telecomunicaciones.

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RESUMEN: El propósito de este estudio fue identificar los factores más importantes que afectan la competitividad del mercado de servicios de telecomunicaciones y el desarrollo de métodos para evaluar la competitividad. Como resultado se confirmaron tres grupos de factores (Infraestructura y producción, servicio y comercialización) que tienen el mayor impacto en el nivel de competitividad de este mercado. Se seleccionaron cinco parámetros relacionados con la calidad de la conexión de voz, la transmisión de mensajes SMS y el acceso a Internet como criterios de evaluación en la metodología propuesta para evaluar dicha competitividad de los sujetos del mercado mencionado.

Este material se puede utilizar por especialistas que se ocupan de la competitividad del mercado de servicios de telecomunicaciones.

PALABRAS CLAVES: servicios de telecomunicaciones competitivos, el rendimiento de ventas de los servicios de telecomunicaciones.

TITLE: Assessment of competitiveness of subjects of the market of Telecommunication Services.

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ABSTRACT: The purpose of this study was to identify the most important factors that affect the competitiveness of the telecommunications services market and the development of methods to assess competitiveness. As a result, three groups of factors were confirmed (Infrastructure and production, service and commercialization) that have the greatest impact on the level of competitiveness of this market. Five parameters related to the quality of the voice connection, the transmission of SMS messages and access to the Internet were selected as evaluation criteria in the methodology proposed to evaluate said competitiveness of the aforementioned market subjects. This material can be used by specialists who are concerned with the competitiveness of the telecommunications services market.

KEY WORDS: competitive telecommunications services, the sales performance of telecommunications services.

INTRODUCTION.

The modern market of telecommunication services operates in conditions of instability, which has a direct impact on the economic results and efficiency of the use of resources in the provision of telecommunication services (Cherepanov, 2008). In recent years, the structure of consumption of services in all sectors of the market changes significantly.

There is a significant reduction in the consumption of fixed-line connection, as modern consumers abandon landline phones in favor of mobile devices, which have become available to the general population. The introduction of new technologies in this high-tech industry leads to a constant expansion of the range of services and channels for their promotion.

Considering the evolution of the segment of mobile and fixed network access in the Russian Federation, the cost of mobile communication and the Internet has become one of the lowest among developed countries, and the total profit of the main operators has decreased by 76.6% compared to 2014. This, in turn, led to a reverse increase in tariffs to compensate for losses (Mobile connection and Internet in different countries of the world, 2016).

Currently, competition in the telecommunications market is carried out between several major players – the leaders of the relevant segments of the telecommunications market; therefore, the topic of competitiveness of the telecommunications market is becoming increasingly important.

In her dissertation research E.P. Zagorodnova (2012) analyzes the scientific and theoretical approaches to the study of the essence of the concept of " competitiveness of telecommunications services», studies methodological approaches to the development of the innovation management system in the telecommunications sector, on the basis of which the author has developed a

methodology for estimating the effect of the introduction of the system of management of innovative activities in the field of telecommunications as the basis for its development.

Other researchers in their works paid attention to other aspects. So, in the dissertation research O.N. Veretennikova (2004) studied the structure, problems and prospects of the telecommunications market. In the study, I.V. Tregub (2010) developed recommendations to improve the efficiency of the market of telecommunications services by improving the pricing policy.

At the same time, the market of telecommunication services is developing so fast that there are completely new trends, the leaders of the market segments are changing, as well as consumer preferences; therefore, there is a need to conduct a new study of the competitiveness of the market of telecommunication services.

DEVELOPMENT.

Materials and methods.

The methodological basis of this study was the research of Russian and foreign researchers involved in the researches of the telecommunications market.

The following methods were used to analyze the competitiveness of telecommunication market entities:

- The method of object positioning, in which there is a comprehensive assessment of the coordinate system, the vertical axis of which is responsible for the quality of telecommunications services, and the horizontal axis-for the prices represented by the subject of the telecommunications market.
- The method of evaluation of the calculated indicators is based on the synthesis of indicators of quality of telecommunication services and the level of competitiveness of the organization providing these services.

- The method of using profiles and quality, which is formed due to the fact that a variety of criteria are determined to meet the needs of subscribers of the market of telecommunication services provided by the service, after which there is a ranking of characteristics that are evaluated by the consumer.
- The method of matrix analogy, which is based on the theory of the life cycle of technology reflected in the occupied market share and the structure of sales of communication services. At the same time, those companies that are able to occupy significant segments of the fast-growing market are considered to be effective.

For a more in-depth analysis and assessment of the competitiveness of companies, you can also use the McKinsey Model "7S", which can be used to assess the internal factors of the company in terms of their resistance to competitive forces. The model highlights the following factors: strategy (Strategy), skills (Skills), shared values (Shared Values), structure (Structure), staff (Staff), system (Systems), style (Style).

Results and discussion.

The main factors affecting the competitiveness of Telecommunications Services.

In scientific research, competitiveness is most often understood as the economic, social or political position of an organization in the domestic and foreign markets. In other words, competitiveness is the ability of a certain object or subject to surpass competitors in the given conditions. To do this, the organization must have certain competitive advantages, through which it can win the fight between entrepreneurs in the market of goods and services.

The basic for the development of a competitive strategy for the development of an organization providing telecommunications services is the availability of objective information about the state of the market, existing and emerging trends, both in the marketing policy of competing companies and consumer behavior of the main and supporting target segments.

The nature and content of telecommunication services in different sources are considered in different ways. The definition from the Russian regulatory document - Instructions of the Bank of Russia (2018) was taken as a basis as a part of this study. According to this document, telecommunication services are services for the transmission of audio information, images and other information flows through cable, radio, relay or satellite communication systems, including telephone, telegraph and telex, rental of communication lines, audio, image and data networks. In addition, this type of service includes the services of organizations providing access to the information and telecommunication net To assess the competitiveness of the market of telecommunication services, you can use a standard algorithm, which includes three stages:

1. Definition of criteria of competitiveness of subjects of the market of telecommunication services and formation of system of indicators for its measurement.
2. Development of a methodology for assessing the level of competitiveness of subjects of the telecommunications market.
3. Development of algorithms (programs) to improve the competitiveness of the market of telecommunication services.

According to the results of research materials of existing studies on the competitiveness of telecommunications services in the Russian Federation (Tokmin, 2010; Zagorodnova, 2012; Nikitina, 2014; Nagirnyak, 2017; Wang et al., 2018), and abroad (Hossain, 2000; K.j, 2001; Bartle, 2002; Uri, 2004; M'Hammed, 2004), conducted by the authors of the article, the main groups of factors determining the competitiveness of telecommunication services were identified and grouped (table 1).

Table 1. Main groups of factors determining the competitiveness of telecommunication services.

Groups of factors	Factors
Infrastructure and production factors.	Availability of production facilities that determine the company's representation in the regions. "Coverage area" (area of stable network signal). Availability of sales offices and dealer network in the regions.
Service factors.	Quality of connection. The range of additional services (paid and free, included in the cost of service packages). Organization of after-sales service. Availability of round-the-clock technical and consulting customer support.
Marketing metrics.	Brand and image of a company. Tariff plans for products (service packages) and individual services. Effectiveness of the company's advertising policy.

If 5-10 years ago, the operators of the Russian telecommunications market had a high profitability (Amel'kina & Makarova, 2011), the situation has changed dramatically in recent years. Over the past five years, the Internet has become cheaper. Today, Russia has one of the lowest ARPU values (average revenue per subscriber) in the world (Safonova, 2017). Active consolidation, mergers and acquisitions of companies – subjects of telecommunication services market continue.

New investment requirements, new requirements of the Russian regulator of services, new opportunities for the provision of digital services – all this washes small operators out.

According to the assessment of the operators of this market, the telecommunications sector probably suffered from the crisis, lower oil prices and the collapse of the ruble more than other sectors of the economy (Derbilova, 2018; Mulyono et al., 2018). Companies are increasingly competing through innovation (Davoudi et al., 2018; Fartash et al., 2018; Tastan et al., 2018), as well as the development of more interesting marketing programs; for example, er-Telecom is actively promoting its innovative products for corporate clients: Wi-Fi networks, cloud video surveillance with video Analytics

functions, WiFi Pro and managed VPN. This company was the first in St. Petersburg to organize video surveillance on drawbridges.

Structure of the Russian Telecommunications Market.

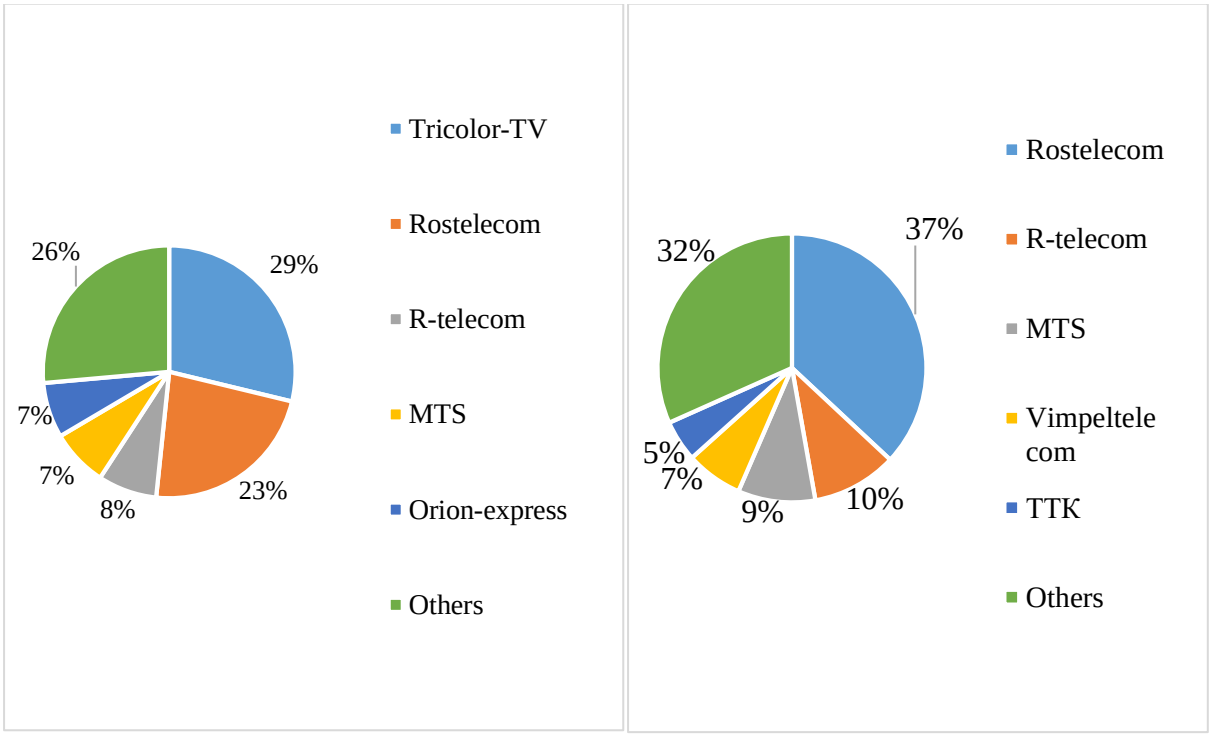
Let us consider the state of data on two segments of the telecommunications market - the segment of services of fixed Internet operators and pay-TV in the Russian Federation for the first 9 months of 2017 (table 2)

Table 2. Data on the segment of fixed Internet and pay-TV operators in the Russian Federation for the first 9 months of 2017 *(source – TMT Consulting).*

Broadband Internet access.		**Pay TV.**	
	Number of subscribers, million units.		**Number of subscribers, million units.**
Rostelecom	11,9	Tricolor TV	12,2
R-telecom	3,3	Rostelecom	9,7
MTS	3	R-telecom	3,2
Vimpeltelecom	2,2	MTS	3,1
TTK	1,6	Orion-express	3
Other	10,2	Other	11,2
TOTAL	32,2	TOTAL	42,4

The data presented in table 2 shows, that two companies – Rostelecom and R-Telecom-are leading companies in the segment of fixed-line Internet operators and pay-TV services. At the same time, the share of Rostelecom is 37% for broadband Internet access and 23% for pay-TV services (figure 1).

Figure 1. The structure of the segment of services of fixed Internet operators and paid.



Television in the Russian Federation in the first 9 months of 2017, %.

However, R-Telecom, which occupies 9% and 8% of these markets, respectively, shows very high growth rates in recent years. This company traditionally uses a strategy of development through mergers and acquisitions. This strategy is applied primarily in those regions in which there are already networks of this company. One of the main priorities of this company is to strengthen its positions in St. Petersburg, where the share of this company in these two markets is already about 30%.

According to the assessment of the management of the company "R-Telecom" more than 50% of the growth is due to organic growth, and in the corporate sector – 65%; and until 2015, this company essentially avoided b2b contracts and other similar projects. But according to the results of its own marketing research, the company concluded that the state's share in the economy reached 70%, after which it decided to enter the market of corporate clients, although at the beginning of 2018 the share of b2b contracts did not exceed 4% of the revenue of "R-Telecom".

Methods of Assessing the Competitiveness of the Market of Telecommunication Services.

Proposed by the authors of the study method of assessment of competitiveness of subjects of the market of telecommunication services is considered by the example of operators – leaders of the segment of cellular communication on the basis of data for mid-2016.

This sector of the telecommunications market is developing very rapidly and is characterized by a high level of competition. Statistics show that the revenue of the Russian operators in 2019 compared to last increased by 3.4% and amounted to RUB 1.7 trillion is the rapid growth over the last five years. In 2017, the growth of revenues of operators amounted to 2.8%, in 2015-2016 – slightly less than 1%, in 2014 – 1.7%. Revenue growth in 2018 was mainly due to an increase in revenues of mobile operators – this year they earned 5% more than in 2017. Thus, the share of mobile operators in the total revenues of the communications industry this year amounted to 57%, that is, about 970 billion rubles. One of the most important factors to ensure such growth was the increase in revenues from corporate customer service (Russian communications market in 2018 accelerated growth, 2018). Based on the analysis of the authors' own research (Filatov & Kovalenko, 2012; Filatov et al., 2015; Semenova et al., 2018; Zaitseva et al., 2018), as well as other specialists (Centonza et al., 2007; Tambovtseva & Makarova, 2011; Rebrikova, 2012; Kuhotsky, 2015), five parameters related to the quality of voice connection, SMC message transmission and Internet access were selected as criteria for evaluating the leaders of the cellular segment. Each indicator has its own quantitative assessment expressed in certain units of measurement. To obtain an overall assessment of competitiveness, it is proposed to translate the values of all indicators in the score, but since different indicators have different values to ensure the competitiveness of the mobile operator, it is proposed to introduce weight coefficients, by which a weighted assessment of the value of each indicator is carried out (table 3).

Table 3. Assessment of the competitiveness of mobile communication segment leaders.

Index.	Weighting factor	Vimpelcom			Megafon			MTS			Tele2		
		Value	Score	Weighted score	Value	Score	Weighted score	Value	Score	Weighted score	Value	Score	Weighted score
Share of unspecified SMS connections %		0,1	3	0,45	0	5	0,75	0,1	4	0,6	0	5	0,75
Average data of transfer rate to the subscriber, Kbit / s	0,19	6495	5	0,95	3519	3	0,57	7106	4	0,76	7390	5	0,95
Share of unsuccessful attempts to establish a voice connection, %	0,19	3,4	3	0,57	0,8	4	0,76	0,3	5	0,95	0,5	5	0,95
Share of voice connection interruptions, %	0,16	0,8	4	0,64	0,7	4	0,64	0,5	5	0,8	0,6	5	0,8
Share of voice connections with low speech intelligibility, %	0,17	0,2	5	0,85	0,4	4	0,68	0,6	3	0,51	0,4	4	0,68
The average delivery time of SMS messages, in seconds	0,14	1,3	3	0,42	2	3	0,42	1,8	4	0,56	1,7	4	0,56
TOTAL	1, 00			3,88			3,82			4,18			4,69

However, these values should not be regarded as immutable. The task of the authors of the study was to present a methodology for assessing the competitiveness of subjects of the telecommunications market. Companies based on current data can use this technique.

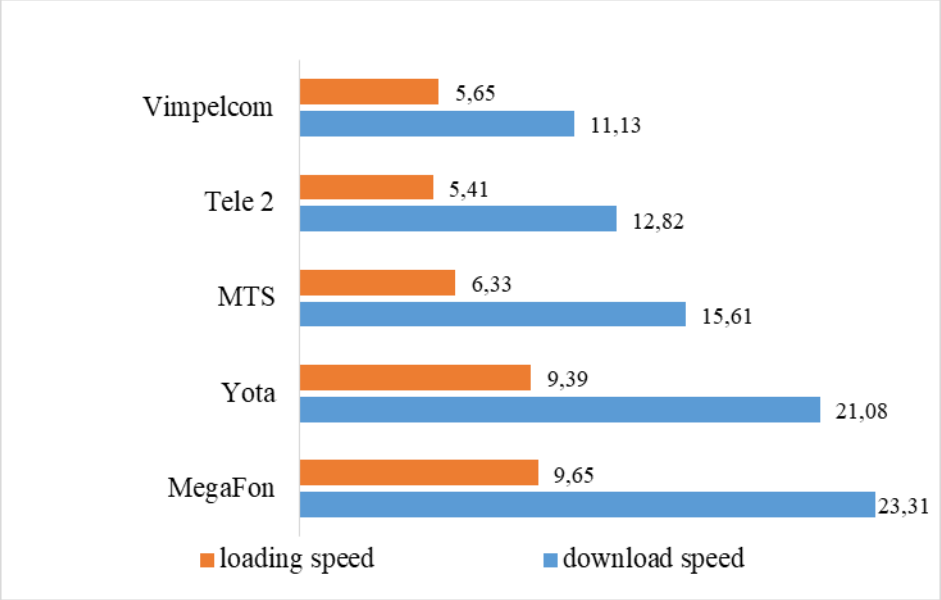
Returning to the technique of an estimation of competitiveness of subjects of the market of telecommunication services, it should be noted that each company has its own competitive advantages, and it is important to understand what is the position of a particular company relative to other organizations. Therefore, it is proposed to build competitive profiles of companies in relation to MTS (table 4), taking as a basis the score of indicators (table 4). As can be seen from the data in table 4, the smallest variation in the values of MTS indicators compared to Tele2, and the largest – in relation to VimpelCom.

Table 4. Competitive profiles of MTS in relation to competing companies.

Indicators	In relation to Tele2		In relation to MegaFon			In relation to Vimpelcom				
	-1	0	-1	0	1	-2	-1	0	1	2
Share of unspecified sms connections %	X				XX		XXX			
Average data of transfer rate to the subscriber, Kbit / s	X		XX						XXX	
Share of unsuccessful attempts to establish a voice connection, %		X	XX			XXX				
Share of voice connection interruptions, %		X	XX				XXX			
Share of voice connections with low speech intelligibility, %	X				XX					XXX
The average delivery time of SMS messages, in seconds		X	XX				XXX			

During 2017, MegaFon achieved a significant improvement in its position as an Internet access operator. In the third quarter of 2017, testing was conducted, which was attended by 1.5 million users. In the calculation were taken smartphones with support for 4G, the results are provided in figure 2.

Figure 2. Data on incoming and outgoing traffic of major Russian Internet operators (source: MegaFon Internet Speed, 2017).



As can be seen from the data in figure 2, the loading speed (incoming traffic) and download speed (outgoing traffic) of MegaFon is the highest among all other analyzed organizations. Official research in Russia was also carried out by Roskomnadzor specialists, assessing the quality of voice connection, SMS transmission and mobile Internet speed. The megaphone showed the data transfer rate to the subscriber more than 13 Mbit / s, which brought it to the first place, which it strengthened during 2018 gold. Followed by MTS, Tele2 and VimpelCom.

CONCLUSIONS.

According to the results of the study, it can be concluded that in a highly competitive market, what is the market of telecommunications services in the Russian Federation, the competitiveness of the subjects of this market will increasingly depend on two factors:

- Ability to timely identify new trends in the development of technologies for the provision of telecommunications services and the ability to introduce innovations that correspond to these trends.

- Effectiveness of marketing programs, including customer loyalty programs based on knowledge of individual customer needs.

As an example of the first factor, we can cite cloud solutions from Telecom operators, which allow customers to abandon the purchase of their own servers and, if necessary, quickly increase the IT infrastructure. During 2017, MegaFon and Mail.ru Group noted the growth of demand for its"clouds". In April 2018, VimpelCom launched the Beecloud computing capacity rental service (MTS bought a cloud provider, 2019).

The importance of marketing programs in the future will also increase due to the fact that the telecommunications market, in particular the communications market will gradually move to the use of the 5g standard. In November 2018, it was decided to create a single infrastructure operator, which will create a common reference network, data storage, and communication services will be provided by the operators themselves separately (Construction of the 5g network, 2018); of course, this is a strategic project that involves the deployment of the 5G network in Russian cities with millions of people until 2024. The creation of such a single operator will make it possible to deploy the network in a shorter time and organize a single infrastructure on the basis of existing operators than if it were done by individual companies. In addition, this will mean the same coverage of the network, which means that the struggle for the consumer will be carried out at the expense of the proposals of marketers, whose task will be to develop new services, additional services, as separate, as package.

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